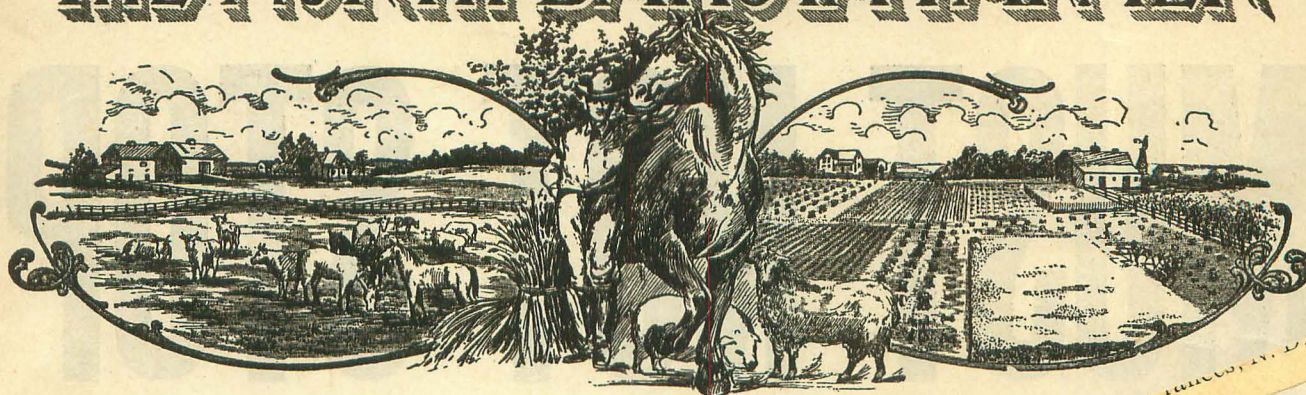


Shall Our Farmers' Institutes Stop? See Next Page

THE NORTH DAKOTA FARMER



"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Alex Alin

Vol. 12 · No. 12

Lisbon, North Dakota, June 15, 1911

50 Cents A Year



Sheep on the Banks of the Red River, Near Wahpeton, N. D.

978.4
N814
Graham

Your Last Chance

The FARMERS INSTITUTES
OF NORTH DAKOTA

MUST NOT STOP

The North Dakota Farmer

Is willing to do its part, if those
MOST INTERESTED in the
Institutes will CO-OPERATE.

OUR OFFER

Send to us the enclosed slip with your subscrip-
tion, new or renewal, for one or two years, and we will
turn into the State Institute Fund ONE HALF the
amount received.

USE THE SLIP

DO IT NOW

Offer Good Until July 1.

Address

NORTH DAKOTA FARMER

LISBON, N. DAK.

THE NORTH DAKOTA FARMER

Vol. 12, No. 12

LISBON N. D., JUNE 15, 1911

50 Cents a Year

Twentieth Anniversary North Dakota Agriculture College

The commencement held on June 6th marked the 20th anniversary of the North Dakota Agricultural College. The commencement address was delivered by Dr. J. H. Worst, President of the College.

Below are some of the statements made:

Historically, it is customary to accept agriculture as the oldest and most

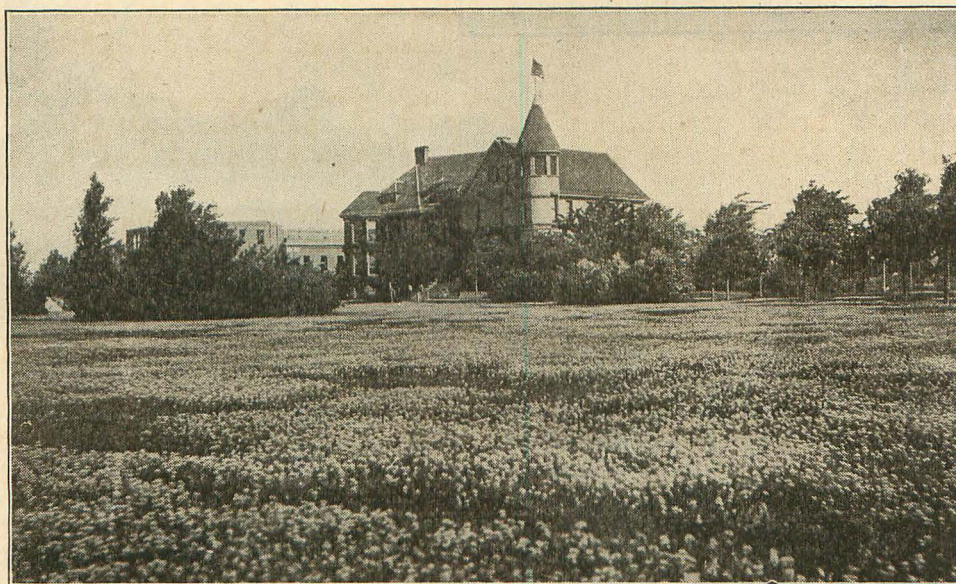
Honored by the Ancients

The Romans and Grecians practiced with delight and honor this most ancient and useful among arts. Mago, a Carthaginian General, wrote twenty-eight volumes extolling the handling of the plow and sowing and conquering of land when Carthage was in her prime. Among the Grecians Cato, Varo and Columella wrote eloquently of that peri-

country and gloried in the art of husbandry during the period that sheds fairest luster upon the Roman Republic.

The Importance of Agriculture

It has been well said that no nation can permanently survive the neglect or subordination of its agriculture. Thus, tho agriculture was once declared to be the most grateful amusement of princes and most powerful kings and was considered a wise and happy state which inclines a man to justice, temperance, sobriety, sincerity, and in a word "every virtue," it was destined to pass thru an ordeal of social ostracism extending thru twenty centuries, and naturally meanwhile it rendered a more important service to humanity than all other arts and vocations combined, and tho branded with contempt it has survived while the



Administration Building, N. D. A. C.

useful of human arts. Beginning with the Garden of Eden, it has sustained the human race during all its wanderings and vicissitudes in its descent as well as its upward struggle towards civilization. "I may with justice," says the historian Rollin "place agriculture at the head of the arts, which has certainly the advantage of all others as well with regard to its antiquity as to its utility."

od when agriculture was held in highest esteem by the ancient world and was honorably practiced by the most renowned citizens of Greece and Rome. Princes did not consider it beneath their birth or rank to be husbandmen and to leave posterity "precepts upon agriculture," and "so sensible were they of its utility and value," Roman senators lived almost continually in the open

nations that humbled it are but fading memories.

Trained Labor

Manifestly the century upon whose threshold we now stand must rely more and more upon the higher efficiency into which labor can be trained for the productive vocations, chief of which are engineering and agriculture, and as the soil is the greatest single factor upon which

our civilization depends for its efficient management we must invoke the best that science has discovered and stand ready to adopt all that science may yet disclose.

A New View of Education

It has been said that "education once meant the alienation from the struggle and separation from the vulgar crowd." Education now means a preparation for the struggle for the mingling with the crowd.

Education for Efficiency

It has been well said that in an agricultural state agriculture should be made as much a part of its education as oxygen is a part of the air and that that education is most vital that prepares the largest number of people to efficiently perform the ordinary services required

Two in Town to One on the Farm

It is said that every farmer in the United States carries two men on his back. In other words every family engaged in agriculture supports two families not so engaged in order to round out and complete the service which has attached itself to society. Each member of society as a matter of course is supposed to render service to some other portion of society, but may not society be supporting an overload of self-constituted servants? Is the farmer not bearing more of this load than is necessary?

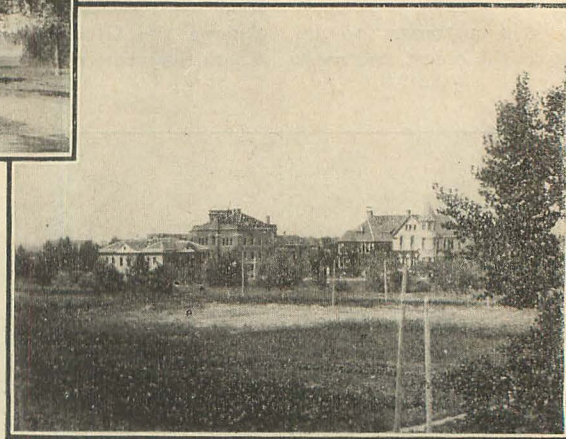
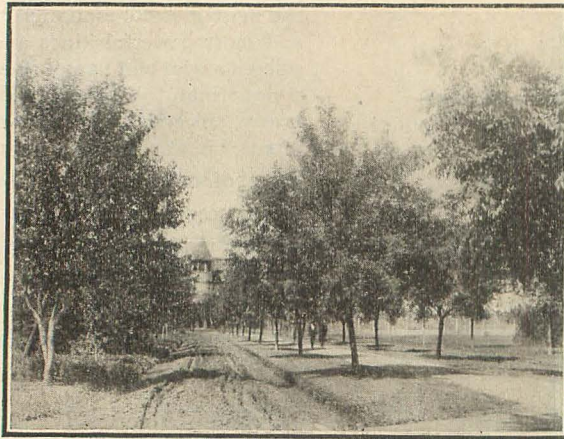
Cooperation Necessary

The time is not far distant, moreover, in this country when agricultural cooperation will become necessary, for in business as in nature the organized in-

worth to meet the social and industrial problems of North Dakota is ever kept in view. A knowledge of the classics will not suffice tho their cultural value is not questioned. On the other hand chemistry and horticulture, biology and engineering are admirably adapted to the needs of the rural industries. Moreover they are quite as cultural as the classical studies and eminently more useful. We are just beginning to realize that a state's industrial system can be effectually developed only when science directs and dignifies labor.

CONDITIONS IDEAL

By W. C. Gilbreath, Com. of Agriculture



Scenes at the N. D. A. C.

by the community and to enable them to live the best life consistent with their surroundings.

Return to the Farm

Presidents, United States Senators, Congressmen and State Officers should upon retiring from office, return to the farm as naturally and with as much dignity as now their custom to return to some city office. The example set by Cincinnatus, the Roman Patriot, and by our own Washington of returning joyfully to their farms after having rendered their respective countries illustrious services, should not forever be held up to the children of our country as remarkable exceptions to an almost universal rule.

variably seizes upon and consumes the unorganized element. Organized capital exacts tribute from productive labor with the same ease and freedom with which the wheat plant captures millions of atoms from the earth and air and weaves them into its own structure without as much as "by your leave."

Twenty Years of History

For twenty years the North Dakota Agricultural College has been making history. It recognizes the importance both to the farmers and to the state of placing its one great natural resource, agriculture, upon a highly intellectual as well as productive basis. To accomplish this end the instruction offered bears consistently upon local conditions. What education is of most

"The very favorable crop conditions noted in our report of last week," says Commissioner Gilbreath, "have continued during the past seven days and rain followed by ideal growing weather has been quite general in every part of the state. The parts threatened by drouth a week ago have been relieved by timely showers, altho the yield may be somewhat curtailed by the previous dry spell. Damage by cut-worms on spring plowing is reported from a few counties, principally in corn, but the injury does not seem to be widespread or serious.

"A few sections are suffering from too much rain in the lowlands, but the condition of the upland seems to more than counterbalance the loss. Hail is

reported in isolated sections but no great damage has been done.

"The wild hay crop seems practically assured all over the state, and tame grasses are making an exceptionally fine growth. In the southern counties alfalfa is being cut for the first time and corn has been plowed and is standing two feet high with excellent color and sturdy stand. Estimates show increased acreage in wheat, oats, flax and corn, corn easily leading the rest in increase. Prospects for a splendid yield of all cereals, fodder and hay crops have never been brighter this time of the season."

GENERAL REVIEW OF CROP CONDITIONS

Nat C. Murray, Acting Chief of Bureau,
Washington, D. C.

The month of May was not, on the whole, very favorable for crop growth; drouthy conditions having prevailed over a great portion of the United States. In consequence the average condition of crop growth in the United States on June 1 was 2.8 per cent below the average condition on that date. Some relief from the unfavorable conditions came at the close of May and first part of June.

A comparison of the conditions of various crops on June 1, with their average growing condition on June 1 of recent years (past ten years for most crops) is shown as follows (100 representing average conditions and not normal):

Cotton 108.5, sugar beets 103.2, apples 102.5, raspberries 101.8, spring wheat 101.1, watermelons 100.6.

Pears 99.7, cantaloupes 99.6, blackberries 99.5, sugar cane 99.5, barley 99.2, winter wheat 98.5, rye 98.2, oats 96.9, alfalfa 96.1, onions 95.5, lima beans 92.5, cabbage 91.0, pastures 90.2, hemp 89.0, clover hay 84.6, all hay 85.1, peaches 83.5.

The above figures relate only to relative growing conditions, not taking into account changes in acreages.

Taking into account both acreage and condition, indications are for about 9.9 per cent larger wheat crop than was produced last year, and 10.2 per cent larger than the average of the past five years; oats crop 13.3 per cent less than last year but 4.8 per cent more than the average of the past five years; barley 8 per cent more than last year, and 5.3 per cent more than the five-year average. Total areas have not been estimated for the other crops, except that the rye area planted is about 1.2% less than last year. Clover (for hay) acreage 6.3 per cent less and sugar cane acreage 4. per cent more than last year.

The average condition of all crops, by States, on June 1, was approximately as follows, 100 indicating the average (not normal) for recent years on June 1.

Maine 93.7, New Hampshire 84.2, Vermont 89., Massachusetts 82.3, Rhode Island 86.2, Connecticut 79., New York 83.9, New Jersey 81.6, Pennsylvania 88.1. Average for above division 86.2; condition compared with June 1, 1910, 87. per cent.

Delaware 81.1, Maryland 84.7, Virginia 85.3, West Virginia 80.2, North Carolina 97.2, South Carolina 98., Georgia 109.1, Florida 108.8. Average for above division 98.7 per cent; condition compared with June 1, 1910, 98. per cent.

Ohio 87.5, Indiana 96.3, Illinois 92.6, Michigan 95.7, Wisconsin 98.8. Average for division 93.6 per cent; compared with June 1, 1910, 96.7 per cent.

Minnesota 102.6, Iowa 101.2, Missouri 86.6, North Dakota 100.6, South Dakota 96.5, Nebraska 98.7, Kansas 85.3. Average for division 95.9 per cent; compared with June 1, 1910, 102. per cent.

Kentucky 93.4, Tennessee 95.1, Alabama 111.3, Mississippi 106.2, Louisiana 110.8, Texas 107.7, Oklahoma 85.4, Arkansas 104.6. Average for division 102.2 per cent; compared with June 1, 1910, 100.2 per cent.

Montana 100.3, Wyoming 97.7, Colorado 88.4, New Mexico 111.4, Arizona 107.1, Utah 95.8, Nevada, Idaho 102.3, Washington 103.1, Oregon 103.2, California 96.3. Average for division 99.1 per cent; compared with June 1, 1910, 96.1 per cent.

TWENTY-FIRST ANNUAL REPORT

W. C. Palmer

The Twenty-first Annual Report of the North Dakota Experiment Station contains reports from the following departments: Agricultural, Chemical, Botany, Horticultural and Veterinary.

In his report for the Agricultural Department, Prof. J. H. Shepperd states that 5000 letters have been received, 2600 of which he answered personally. He also calls attention to the livestock in the state decreasing, but that a change must come in the farming and with it an increase in the livestock. In view of this he has been working out data to show how the change can be brought about.

One of the most interesting things in Prof. E. F. Ladd's report of the Chemistry Department is the milling and baking tests with Velvet Chaff wheat, demonstrating that it produces a flour that makes as good bread as that from Fife or Blue Stem wheat.

Prof. H. L. Bolley of the Botany Department reports progress in the studies on flax wilt, wheat root rot diseases, weeds and seed analyses.

A report on the growth of different kinds of trees is given by Prof. C. B. Waldron in his report of the Horticultural Department. He also gives a report on grasshoppers.

Dr. L. Van Es, the Station Veterinarian, gives a summary of his report on swamp fever. This is one of the most baffling diseases that affects our horses.

The financial statement shows that the Experiment Station received no aid from the State, but was run entirely on federal funds.

CLAIMS STATEMENT IS NOT GENUINE

Hon. Samuel W. McFall,
House of Representatives,
Washington, D. C.

Dear Sir:

In your speech delivered in Congress on April 21st you have charged that the opposition of the farmers to the Canadian Reciprocity Bill does not represent the genuine sentiment of the farmers themselves, but that they have been induced to protest against that bill by other interests. In reply I wish to state that there is absolutely no ground for your assertion, and to assure you that the sentiment of the individual farmers in the 28 States in which the Grange is organized is practically unanimous against the Reciprocity scheme.

I receive regularly each week about 40 farm journals published in all sections of the country. Of these papers only one has failed to denounce Reciprocity, and that one has not dared to favor it. Does this indicate that the opposition of the farmers is not genuine.

For your information I would state that so far as I have been able to find out there is not a single working farmer in the country who favors Reciprocity, and if the farmers had a chance to vote on that proposition the vote against it would be in the ratio of 1,000 to 1.

A short time ago you posed as the critic of a Republican President, whom you sneeringly described as "the little Father in the White House." Now that a Republican President has repudiated the solemn pledges of the platform on which he was elected, and is endeavoring to deprive the farming industry of the protection promised it by that platform, it is interesting to find you one of the most obedient children of "the little Father in the White House."

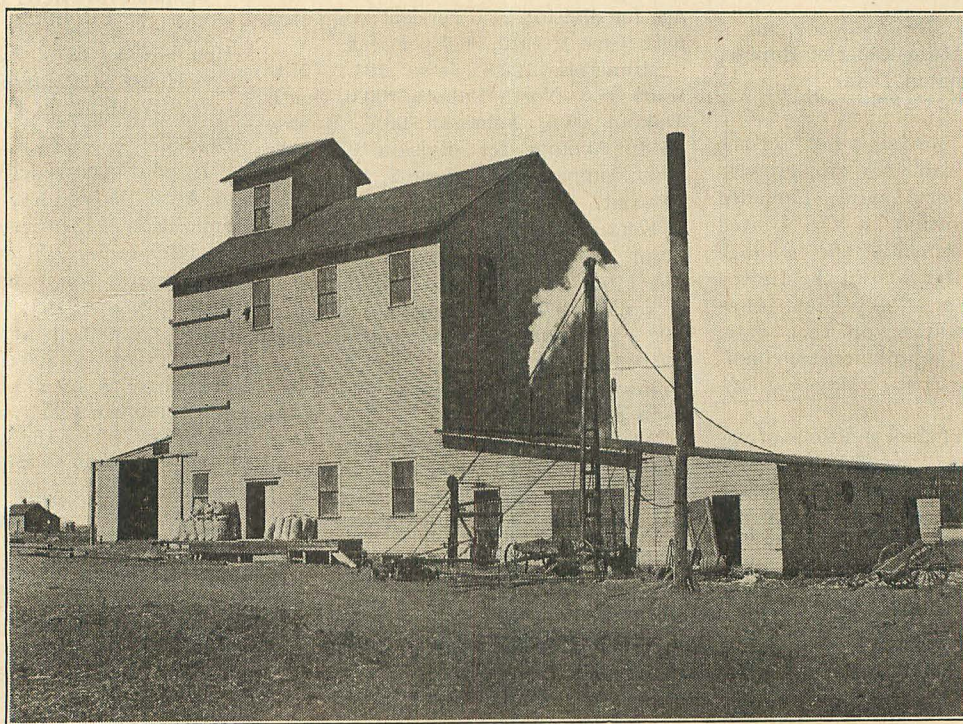
You claim that no protection is needed against Canadian farm products because conditions in both countries are practically equal. Do you know that the Canadian farmers have cheaper land,

lower wages for farm labor, a newer soil requiring no fertilizers, and lower tariff on the manufactured articles they buy? Is it not a fact that the average tariff rates on articles generally consumed by the farmers is from 20 to 25 per cent higher in this country than in Canada? Since this is the case, do you think it fair that the farm crops of Canada, produced at a lower cost than those of this country, should be allowed to compete freely with the products of our farms? If Massachusetts had a tariff rate of 45 per cent on manufactures, while New Hampshire's tariff was only 25 per cent, would you favor allowing the farm products of this State to be sold freely in competition with those of Massachusetts?

cotton ties, leather, boots and shoes, agricultural implements, cotton bagging, fence wire, meats, cereals, flour, bread, timber, lumber, sewing machines, salt, and other articles, giving as a reason for your action the fact that there had been no report by the Tariff Board on the cost of producing these articles in this and foreign countries.

In view of the fact that you voted for the Canadian Reciprocity Bill, which puts on the free list practically all the staple farm products, without any consideration by the Tariff Board of the question as to whether these articles could be produced more cheaply in Canada than in the United States, I would like to know whether you think there should be one rule governing tariff

is a tax upon bread." The bill introduced by Mr. Underwood, H. R. 4413, puts flour, bread, biscuits, prepared cereal foods, etc., on the free list, yet you voted against reporting that measure. The Canadian Reciprocity Bill puts wheat, oats, rye, and other cereals on the free list, but taxes flour, oatmeal and other manufactured forms of these grains. Is this what you call untaxing bread? The people of our towns and cities do not eat wheat or oats, they eat the food products manufactured from them. Are the farmers to understand that you favor free trade for their products in the form in which they leave the farm, but protection on the articles manufactured from them in the form in which they reach the consumer?



The Balfour Roller Mill, Schimel Bros., Props.

Capacity, 80 bbl., daily. Ships to Chicago and New York Excellent grade of flour.

You have in the past worked and voted for high tariff taxes for the manufacturers. You evidently think that they are a sacred class, entitled to privileges for which the humble farmer is not worthy. I beg to assure you that the farmers are quite capable of protecting their industry without the advice or assistance of any outside interests, and that if this Reciprocity scheme becomes law they will promptly take such action as may be necessary to give the protected manufacturers the same treatment that has been dealt out to the farming industry.

I learn by newspaper reports that as a member of the Committee on Ways and Means you voted against reporting House Bill 4413, putting on the free list

legislation for the farmers, and another for the manufacturers. Do you think it fair that farm products should be made free without an investigation into the cost of production, and that manufactured articles should be taxed unless it can be shown that they can be produced as cheaply in this country as in other countries? And do you hold that the pledge to maintain the policy of protection, made in the Republican platform of 1908, was intended to apply only to manufacturing industries, and that the farming industry is not entitled to protection?

In your speech in favor of the Reciprocity Bill delivered on February 11th, 1911, you stated that "the most odious of all taxes ever devised by government

If you believe in untaxing the people's food why did you vote for the Payne-Aldrich Tariff Act of 1909, which imposed a tariff tax amounting to nearly 80 per cent on sugar, a food product of universal consumption? Are you aware that the sugar tax imposes a much heavier burden on the average family than does the tax on wheat or flour?

If you and your associates who call themselves protectionists, but vote for free trade for the farmer, have any doubt as to the real sentiment of the great majority of the farmers of all the New England, Northern, and Northwestern States on this question, you are destined to a rude awakening on the First Tuesday of November, 1912.

Yours truly, N. J. BACHELDER

THE 1910 YEARBOOK

The seventeenth volume of the Yearbook (1910) will soon be issued by the U. S. Department of Agriculture. In appearance and make-up it differs but little from its predecessors; contains 28 articles; 49 full page illustrations, of which 8 are colored; and 31 text figures.

The Department's appreciation of the service of the late Senator Jonathan Prentiss Dolliver rendered to agriculture during his public career is expressed in the selection of a portrait of him as a frontispiece.

The Fourteenth Annual Report of the Secretary, for the fiscal year ended June 30, 1910, occupies the first 156 pages and gives the "general report of the operations of the Department," which, under the law, must form a part of the volume. This report, supplemented by the statistical matter found in the appendix, gives a more complete and comprehensive summary of agricultural conditions in the United States than can be found in any other single publication.

The next 320 pages, divided between 28 articles contributed by many members of the scientific force of the Department, contain data upon many of the important questions now prominent in the public eye, and equally vital to the agricultural and urban population both as producers and consumers of the food stuff of the nation.

The importance of the forests to the residents of the country and the prominence of that subject in Department work is reflected in four papers, namely, The Management of Second-Growth Sprout Forest, Progress in Saving Forest, Fire Prevention and Control on the National Forests, and Injuries to Forests and Forest Products by Round-headed Borers.

Settlers in many parts of the West will be interested in the two papers relating to The Agricultural Duty of Water, and Mountain Snowfall Observations and Evaporation Investigations in the United States, while everyone will be interested in the two articles, one on the Progress and Present Status of the Good Roads Movement in the United States, and the other, describing the Use of Bituminous Dust Preventives and Road Binders.

Those engaged in Animal Husbandry will find the discussion of Some of the More Important Ticks of the United States most timely, and the paper on the Eradication of Cattle Tuberculosis in the District of Columbia will not only engage the attention of those directly benefited by that accomplishment, but will encourage other communities to renewed efforts for greater success in the same line. Grading of Cream, and the Effect of the Present Method of Hand-

ling Eggs on the Industry and Product, are two more papers which to dairy-men and poultry raisers will be valuable.

That the general farmer, the fruit grower, the trucker, and the grower of special crops hold a deservedly large space in the thought and activities of the Department is demonstrated by the nine papers on Supply and Wages of Farm Labor; Nitrogen-gathering Plants; Insect Enemies of Tobacco in the United States; Increased Yields of Corn from Hybrid Seed; The Utilization of Crop Plants in Paper Making; Co-operation in the Handling and Marketing of Fruit; Precooling of Fruit; Camphor Cultivation in the United States; and the illustrated article on Promising New Fruits of the Year 1910.

The Department does not leave the farm product as soon as produced, but as its destiny is consumption, articles dealing with the proper, best, and most economical use of farm products as food for man, are furnished on Cheese and Other Substitutes for Meat in the Diet, The Respiration Calorimeter and the Results of Experiments with it; and The Game Market of Today.

As showing what the Department is doing to further progressiveness in the farming communities, and to encourage rural education and the instruction of agricultural courses in country schools, the article entitled Community Work in the Rural High School will be of interest and value.

Articles of peculiar interest to dwellers in the larger cities are one on The Value of the Shellfish Industry and the Protection of Oysters from Sewage Contamination, and one on The Inspection of Imported Food and Drug Products.

The Migratory Movement of Birds in Relation to the Weather, Review of Weather Conditions of the Year 1910, and Seedtime and Harvest; statistics as to the organization and work of the U. S. Department of Agriculture, the State Departments, and the Agricultural Experiment Stations in the States, complete the new Yearbook.

The volume is distributed principally by Senators, Representatives, and Delegates in Congress, the Department's quota being reserved for its volunteer correspondents.

CANADA FIELD PEAS AND THEIR PLACE ON NORTH DAKOTA FARMS

W. R. Porter, Supt. Demonstration Farms, North Dakota

Many farms in the eastern part of the state up to the present time have failed to produce either clover or alfalfa successfully. Very few farms in the central and western parts of the state have begun to grow either of these legumes as

yet. Many fields seeded down to timothy and brome grass and clover fail for various reasons.

Seed Canada field peas and oats sowing peas at the rate of one and one-half bushels and oats at the rate of one-half bushel per acre.

This has been the kind of hay that has been grown on the state demonstration farms where the clover or other grass crop either summer or winter killed. In all forty fields have been grown during the last five years. The average yield has been 3184 pounds of dry hay per acre until last season which was very unfavorable for this crop and cut the average yield of these forty fields down to 2516 pounds of dry hay per acre or approximately one and one-fourth tons. The yield of the past season on twelve fields was 957 pounds or a little less than one-half ton per acre but this is equal or superior to any other kind of hay or clover produced the past season with the exception of alfalfa.

This hay is, perhaps, superior to any other form of roughage excepting well-cured alfalfa for all kinds of livestock. It is particularly valuable for dairy cows. It should be cut when the oats are in the milk or dough stage and when the peas are nearly ripe. It may be cut with either mower or binder particularly if the oats are stiff strawed so as to hold the peas off the ground. If cut with a binder the hay is more easily cured and handled. It is very seldom that this form of hay will cause the farmer much bother in curing. Cut it in the forenoon, rake into winrows and cock it up



Paint Is Cheaper Than New Buildings

You know how quickly a building that never saw paint goes to rack and ruin.

The boards rot around the nails, they crack and warp.

Only constant repair keeps the building standing.

An occasional coat of good paint made with

"Dutch Boy Painter" White Lead

and real linseed oil will save your buildings and reduce repair, to say nothing of improving the looks of the place.

Decide to use "Dutch Boy Painter" White Lead this spring. It's a mighty good investment. Write for our "Helps No. 538" which will tell you why, how, with what and when to paint.

National Lead Company

New York Cleveland Chicago
St. Louis Boston Buffalo
Cincinnati San Francisco
John T. Lewis & Bros. Co., Philadelphia
National Lead & Oil Co., Pittsburgh



Kill-Em-Quick Gopher Poison Saved \$100 for This Man Last Year

After all the surest proof, for you, of the value of Mickelson's Kill-Em-Quick Gopher Poison is the testimony of your brother farmers. Here is a sample of the letters I receive every week. O. C. Strassheim, of Turtle Lake, N. D., writes: "I used your Kill-Em-Quick Gopher Poison on my farm, and at the present time a live gopher could not be found on it. I know that it has the old strychnine beat in a hundred ways. I know that it has benefitted me to the extent of \$100.00."



Yet you cannot hope to reap 100% crops if you allow gophers and other field pests to feast upon the seed and tender shoots of grain.

What Gophers Cost

After many years of careful experimenting and testing, I have found, and proved to thousands, that every single gopher costs at least 10c to keep. And that there are from 500 to 1,000 gophers in a 40 acre infested field—and that every pair of gophers raise from 20 to 30 more each season.

Mickelson's

Kill-Em-Quick

Is the simplest, surest, quickest and most economical Gopher Poison. Simply soak the grain over night—drain water off and mix with Kill-Em-Quick which adheres to the grain—so it comes into immediate contact with the stomach tissues of gophers, causing death instantly. Its peculiar odor attracts gophers. They can't resist it—and they eat it in preference to the tender shoots or the seed, and the poison is so strong that the merest atom kills a gopher. A \$1.25

box of Kill-Em-Quick will kill 4,000 gophers. As each gopher costs you fully 10c, one box of Kill-Em-Quick means \$400.00 in increased crops.

Don't Use Strychnine

An ounce of strychnine, which should sell for \$1.00, has the power to kill 2,632 gophers. But strychnine is very insoluble and a great quantity of water must be used to dissolve it and likewise a great amount of grain must be added to absorb the liquid mixture. Its strength is so reduced that it takes an average of 20 grains to kill one gopher. But, as strychnine is excessively bitter, only about one-third of the gophers eat enough of it to kill them; so extensive experiments have proved that the dead gophers, from \$1.00 worth of strychnine, number only about 874.

On the other hand it has been proved that a 75c box of Mickelson's Kill-Em-Quick actually kills 2,000 gophers. In the

first place, it is full-strength on every grain. In the second place, its odor and taste are attractive to gophers. In the third place, the minutest atom taken into the stomach is enough to kill a gopher.

Read These Letters

Mr. Wm. Heppler, Volga, S. D., writes: "I have just tried 'Kill-Em-Quick' Gopher Poison and can say it is all right. It is away ahead of strychnine. I will recommend it to all of my friends and neighbors."

And Mr. Carl Schaffer, of Mercer, N. D., writes: "Your Kill-Em-Quick Gopher Poison that I used this past summer was the best that I have ever used, and I have tried every preparation on the market but none were its equal. I put it on my fields, and went out to see its effect about two hours afterward and found dead gophers nearly every step I went over the field. I recommend it very highly to all of my neighbors."

Money-Back Guarantee

Mickelson's Kill-Em-Quick Gopher Poison complies with and is guaranteed under the Food and Drugs Act of June 30th, 1906, Serial No. 29689. That is a guarantee against misrepresentation. Back of this is the personal guarantee of our Company, on every box of Kill-Em-Quick. If, after using Kill-Em-Quick according to directions, you are dissatisfied in any way, address a letter to me personally, enclosing the outside label and stating how and when used, the amount paid for and from whom purchased, I will immediately refund the amount paid.

Send Coupon Now for All the Folders

I want to send you some more interesting facts that show you beyond doubt the superiority of Mickelson's Kill-Em-Quick Gopher Poison. I have issued several little folders that I want you to read because I know it will pay you well.



TRADE MARK

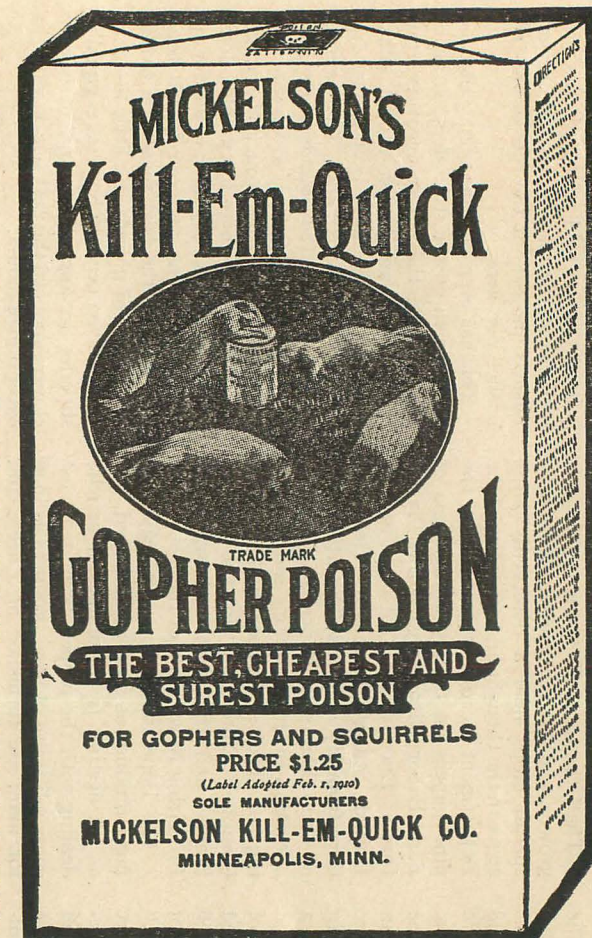
ANTON MICKELSON, President

Mickelson Kill-Em-Quick Company

1429 Washington Ave., No.,

Send Me the Coupon Now

Minneapolis, Minn.



Anton Mickelson, President,
Mickelson Kill-Em-Quick Company,
1429 Washington Ave., No., Minneapolis, Minn.

Dear Sir:—Please send me the folders you speak of in your advertisement. I am interested in Mickelson's Kill-Em-Quick Gopher Poison and the other Mickelson products.

Name.....

Address.....

State..... R. F. D.....

in the afternoon; stack as soon as it is dry or cut with a binder and shock up immediately as with any other grain. The great drawback to the production of this variety of hay is the high price of pea seed but this can be overcome to some extent by the farmers growing their own seed.

For fattening hogs peas are a very superior food. They can be used green as a soiling crop and as a pasture crop. The peas will be ripe the latter part of July or early in August. A bunch of spring pigs in such a pasture will make excellent gains without being fed any threshed grain. When the peas are all gone in September they should have a field of gehu or white flint corn to run in. By this means the hogs can be fattened successfully without feeding much if any threshed grain and they will be ready for market before cold weather sets in in the fall.

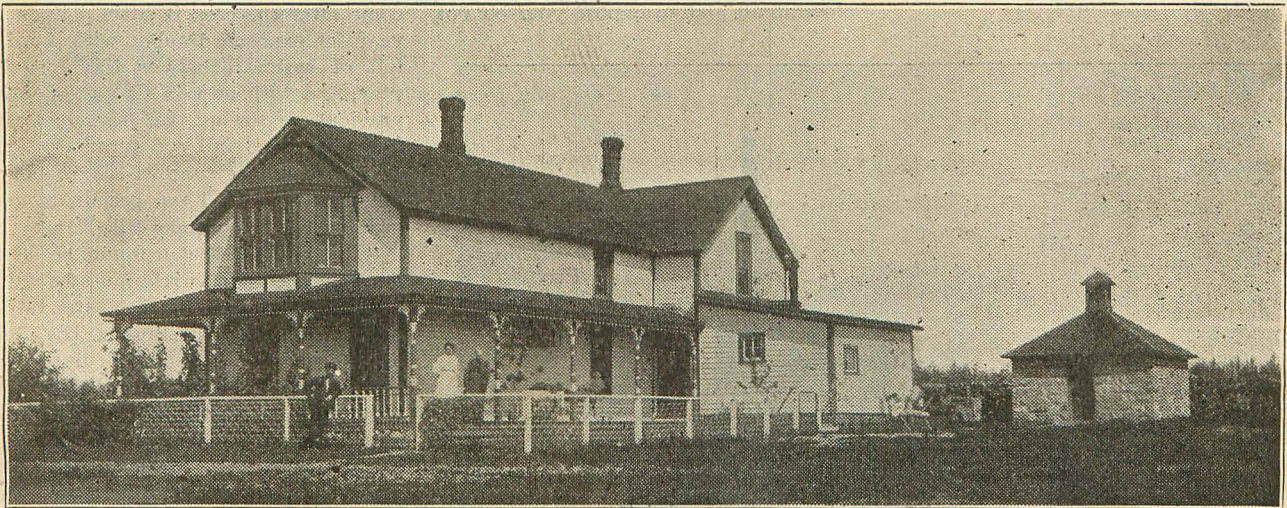
possible to inspect brome grass fields as the grass is growing and learn of a number of areas suitable to cut for seed. If you know of farmers in your neighborhood who have brome grass fields likely to be suitable for seed purposes, I will send a man or come myself to inspect them to ascertain whether they do or do not contain quack grass. Our funds are limited and I have thought that should we be able to send a man, you would be glad to furnish the livery or auto to look over the fields.

Should we succeed in locating brome grass fields which appear to be free from quack grass, we would advise the owner to save a portion or all of it for seed purposes. You would then be given a list of such fields and would have first opportunity to contract for seed from those fields. In order to get the owner to save them

TUNIS AGRICULTURIST PUZZLED

M. Paul Bourde Seeks Light on Dry-Farming Matters and Prof. F. B. Linfield Makes Reply

Paul Bourde, Director of Agriculture for Tunis, has submitted to the International Secretary a series of questions regarding dry-farming practices that are quite pertinent. These in turn have been submitted to a number of well-known educators and experimenters along scientific dry-farming lines, with the request that they answer in their own way. This month "Dry-Farming" is printing M. Bourde's letter, accompanied by a reply received from F. B. Linfield, Director of the Montana Agricultural Experiment Station at Bozeman.



Frank Peltres's Residence, 3 miles east of Dunseith.

Peas not only have an important part to play on the farm in producing cheap hay of a fine quality and cheap feed for the hogs but they are legumes like the alfalfa and clover and have the same ability, only to a lesser degree, of taking the nitrogen from the air and fixing it in the soil for the benefit of the cereal crops that are to follow.

INSPECTION FOR QUACK GRASS

By H. L. Bolley

In talking with a number of seed men and seed dealers, I have learned that all are much interested in whether they will be able to procure Brome grass seed free from quack grass seed for next year's sales.

I have thought that it would be

for seed purposes, we would promise to examine the seed which he sends us in the fall and (provided he had not already succeeded in selling his seed in the local market) will send his name and address to all parties who wish to buy good brome grass seed.

If we do this inspection work, it should be done while the grass is heading. If you would like to have us visit the fields in your neighborhood, write me by early mail, including a list of growers to be visited, etc. I think much good could come from such inspection work—alike to the neighborhood, the farmers and the local seed dealers.

We would also be able to aid the farmers interested in recognizing many other troublesome weeds and plant diseases, including flax sick and wheat sick soils.

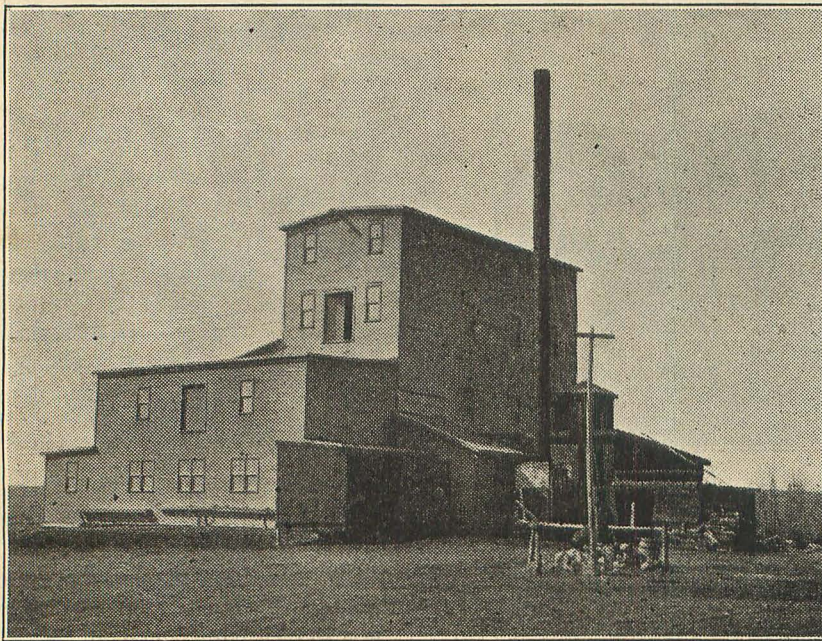
M. Paul Bourde's Questions

"Paris, December 12, 1910.
"Mr. John T. Burns, Secretary-Treasurer Dry-Farming Congress:

"Dear Sir.—I have been for five years at the head of the Department of Agriculture in Tunis, and I am now conducting in that country a farm of 12,500 acres in the neighborhood of Kairouan, a region in which the average rainfall does not exceed 13 inches per annum. The methods of American dry-farming, therefore, are of special interest to me, and I am a subscriber to "Dry-Farming," with a view to studying such methods. There are, however, certain points that I do not succeed in elucidating, and I would be much obliged if you could give me either in "Dry-Farming" or in a private letter an answer to the following five questions:

"First.—You recommend on the one hand that the seed bed be well prepared, and you insist repeatedly on

this, that the seed bed must be at least three inches thick. On the other hand, you recommend with equal earnestness to maintain mulch at the surface, and not to use for that purpose the disc harrow, which has the drawback of leaving the soil out of level and to make it dry while going too deep, but to make use of the spike-tooth harrow. Well, the spike-tooth harrows (I mean those used in France) do not go further than one inch and a half in depth, and reach only by exceptions, two inches. There appears to be some contradiction in such statement which I would thank you to explain. Do you make a difference between the seed bed and the mulch? And if you make one, what is the difference? If you make no difference, is the three inches seed bed to be considered solely as an ideal that is not realized in practice. Or—and that seems difficult to me—do your spike-tooth harrows enter in the earth more deeply than ours?



Dunseith Flour Mill.

"Second.—You are always speaking of seeding as if the farmer, who has prepared his ground well and preserved the preceding year's moisture, was at liberty to choose his time for so doing. Is it true that, in a field where the summer fallow has been well tilled the moisture preserved is sufficient to obtain germination of the grain sown without the help of rain? Is this an exceptional or a general practice? Does this happen regularly, for instance in regions in which the annual rainfall does not exceed 10 inches? And if such is not the case regularly, have experts ascertained what quantity of water must have fallen at the mini-

mum during the preceding year so that the grain sown may germinate without the help of rain in well-prepared lands?

"Third.—You advise to drag the soil before the drill, but I do not find anywhere an indication as to the necessity of giving first a stroke of the plow or of the disc harrow to soften the soil. Is the working of the summer fallow sufficient to maintain the soil loose enough so that without further preparation the grain may be carried three inches deep by the operation of the drill. In this country it is an impossibility, and the earth has to be shaken anew for the drill to pass in it.

"Fourth.—You recommend, with much reason, to plow when the soil is sufficiently damp. But it must happen with you, as it does with us, that the plowing season may coincide with a period of drought in which the ground is dried out. What do you do in such a case? Do you resign yourself not to plow at all and to expose yourself not

Dr. Linfield's Reply

"First.—The ideal condition for proper germination of seed in the dry season is to have the ground plowed deep, and then packed firmly on the sub-soil. In this country, when plowed in the fall, the winter and spring rains and snows pack the ground well. Surface tillage then preserves the soil mulch, which experiences dictate should be about three inches. This will vary with different soils, the weight of implements used and the dryness of the season. In seeding, put the seed deep enough to be in the moist earth under the surface mulch. The seed must be in the moist soil to grow. If the moist soil is two inches below the surface, that is deep enough, but if it is three inches or more, the seed must go that deep.

"Second.—In our work we have always depended upon the stored moisture to germinate our fall-sown crops, and never upon the rainfall that may come after the crop is sown. Even in years of extreme drought with a rainfall of seven inches or less for the year, and with no rain for two months previous to sowing, we have had the fall wheat and fall rye germinate and grow well on the summer-tilled land. fall wheat and fall rye germinate and grow well on the summer-tilled land.

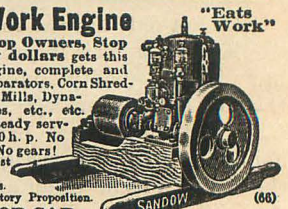
"Third.—Soil that cannot be kept loose by the drag harrow must be quite heavy and packs quite firm after rains. Under those circumstances, the disc must be used. In such soil, by giving the proper dip, the disc will not cut too deeply. I would use the disc, however, as soon as this packed condition became apparent, and not wait until just before seeding; maintain the

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to be able to sow in the following autumn? Or do you prefer to plow under bad conditions, rather than not to plow at all?

"Fifth.—You have published in one of your latest numbers a communication from a farmer in Utah by which he indicates as a condition of success never to use the disc plow. Is this to be considered as a personal opinion or as the conclusion to be derived from general practice? What fault is there to be found with the disc plow? The disc plow appears to have the merit of working faster, sensibly faster, than the plowshare.

(Signed) PAUL BOURDE."

mulch with a drag harrow if you CAN, but with a disc if you MUST. There should be moisture enough in the soil just below the mulch to germinate the seed.

"Fourth.—Our practice and our ideals do not always coincide. When ground is moist it glows easier, and the ground pulverizes and works up in finer tilth. But when we do not get rains, or there is more plowing than we can get to in the wet season, or for other reasons, then we plow even if it is dry. In some parts of

Washington, Idaho, Oregon, and Utah, where the winter precipitation is depended on to grow the crops, the very common practice is to plow the ground when dry, and leave the field rough so that the rainfall will readily penetrate the ground.

"Fifth.—There are things to be said pro and con on the disc plow. It has its place. It may not have been valuable on the farm of the Utah correspondent, but others have a different experience."

Why? Where? When? How?

Have you a Query? Write the North Dakota Farmer

Q. How can one tell when to stop churning?

Answered by G. L. Martin, Prof. of Dairying, N. D. A. C.

When butter globules are about the size of wheat kernels. When buttermilk is frothy and looks clear blue in color. When the butter floats well up in the buttermilk.

Q. Why dip sheep?

Answered by Dr. L. Van Es, Veterinarian, N. D. A. C.

For the eradication of certain parasites and for the prevention of scab.

Q. Why is smallpox contagious?

Answered by T. D. Beckwith, Asst. Bacteriologist, N. D. A. C.

Smallpox is contagious because the pustules which are caused by the disease contain the germs of the disease and if parts of the scab are carried away by abrasion or blown about by the breeze the person on whom such particles alight is very likely to become infected. This is especially the case should they fall on some cut surface or should they be breathed into the nose, throat or lungs.

Q. What can be sown on land which is infected with quack grass?

Answered by J. H. Shepperd, Dean of Agricultural Department, N. D. A. C.

Land which is badly infected with quack grass should have the quack grass destroyed before it is cropped. If it has the quack grass in spots and patches only as is the case when it first starts in the field, I would suggest putting in a cultivated crop, preferably corn, and I would plant it in check rows so that it may be cultivated in both directions. I would leave the spots which are infected with quack grass and be careful not to cultivate thru them as doing so will carry the underground root stalks and spread the weed widely. I would cultivate these spots preferably with a spading harrow at very frequent intervals thruout the season and thru two or

more seasons if it is necessary to destroy the grass. This is a serious weed pest and one which should not be given temporary treatment. It spreads more slowly if put into a grass crop than in a grain crop. Whenever a quack grass field is opened or plowed those patches should be given very thoro treatment until they are destroyed. They can be smothered, of course, by putting a straw stack over them and allowing it to remain for two years.

Q. What trees are best adapted to North Dakota soil?

Answered by O. A. Thompson, Supt. Edgeley Sub-Station, N. D.

About fourteen acres of the farm is now devoted to experimental forest tree planting. Some very interesting and valuable information has been secured from the behavior of some of the varieties of trees under trial. A special study is being made of varieties with a view of finding species which are adapted to the prairie country and which will be of economic value and usefulness in providing timber and shelter belts for that region. The cottonwood, Green ash, American White elm, White and Golden Russian willows, Wild Olive, Boxelder, Canoe, and White birch, Choke cherry, Colorado Blue and Black Mills spruce, Jack and Bull pine, and Mountain ash have proven very desirable sorts for general planting. The Norway and Carolina poplar appear to do well under favorable conditions, but

further trial will be necessary before they can be recommended for general use. The trees have been tried which are of questionable value are the Hackberry, Baswood, Honey and Black locust Bird and Bin cherry. Repeated trials with attempts to grow the catalpa has shown that it is not hardy here.

Trials have been made with Douglas spruce, Norway and Dwarf Mountain pine, Austrian and Scotch pine and Red cedar with varying success. The European larch has not proven hardy.

The Diamond willow is hardy and is making a fairly vigorous growth, but in all probability it will be of no economic importance to this district unless grown in favorable locations where plenty of moisture is present.

About twenty thousand forest trees are now growing on the Station farm. The Green ash and cottonwood are two of the most desirable trees under trial for general planting. The Green ash, especially, has shown a remarkable adaptation to almost any condition of climate and soil. A block of two-year old seedlings of the Green ash and cottonwood planted in 1908 have made a growth of two and four feet respectively in the past two years. Very little growth took place in these trees in 1910.

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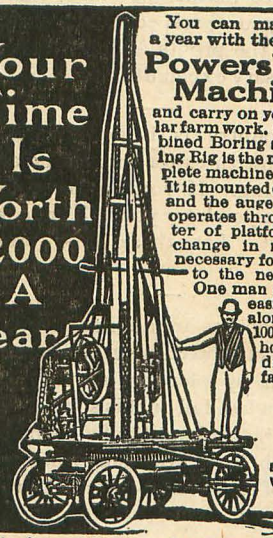
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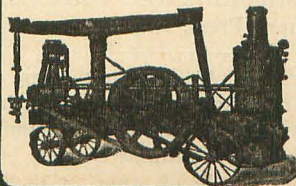
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Vol. 12 JUNE, 1911 No. 12

The prospects were never better, at this season, for a big wheat crop in North Dakota. Land in good condition, crop put in well and usually good seed, plenty of rain and good growing weather.

Let us not, however, contract debts for the expected crop. Hail may strike your farm, the wheat may grow too rank and fail to mature or lodge, rust may destroy your prospects, but wait and see what the profits are and then make the necessary expenditures.

The country is being flooded with cheap substitutes for turpentine and oil for painting. If you let these fellows impose on you later you will have reason to repent. Let these fake products alone.

Grasshoppers are abundant and why? Because their breeding grounds were not destroyed by plowing, as they should have been last fall or this spring. Leave no grass plots about the field where they can hatch their young another season. Get rid of these and prevent their influx another year.

Eggs can be put down during the season of plenty and kept for winter use when eggs will be scarce and high. Prepare a solution as follows: Boil water; cool and add one quart of good grade waterglass to twelve quarts of water. Put this solution in a crock, jar or old lard pail and drop in fresh eggs, from day to day. Keep covered to prevent evaporation and in a cool room and eggs will keep well.

Those who set out trees about the home do not always care for the same as

they should. Give them a chance to grow by proper cultivation and mulching while still young and see that they are properly trimmed up to make good trees later. Even a half dozen trees in front of the home changes the whole appearance of a place and adds value when you want to sell.

Are you going to have better seed wheat another season by taking care to select some of the best wheat early maturing, free from weed and foul seed, no smut or rust and when the thrashing is being done, save and put this aside for next year's seed or are you going to trust to luck and take anything that happens to be available when seeding time comes?

The State Fair at Grand Forks and the Tri-State Fair at Fargo in July should find you present if possible with some exhibit from your farm and home. These are among the great educational forces for agriculture when properly conducted and utilized. Cut out fake affairs and gambling and keep fairs what they should be. There are plenty of wholesome and legitimate sports without the fake element.

We have been having a good exhibition of what graft, fraud, bribery and corruption can do even in high places, if press reports are to be accepted, with regard to a United States Senator from Illinois. Agriculture, the very foundation of our civilization, will be safer as will the whole country when popular elections are the means whereby senators are elected.

One can not visit the Agricultural College grounds at this season of the year without finding much in the way of object lessons in agriculture. When in Fargo every farmer should make it a point to visit the grounds and see for himself what is being done in hundreds of lines of interest to farmers and the people of our state. Visit the gardens, the field, the barns and all of the buildings.

Cyril G. Hopkins, of the University of Illinois, has contributed a work that should be in every school library of the rural districts. The Story of the Soil is most fascinating reading and will be a means of furthering the "back to the farm" movement. The latest scientific discoveries are skilfully interwoven in the delightful narrative. Published by The Gorham Press, Boston.

Farmers should see that eggs are fresh when brought to town or else there may be trouble for those who handled them and this will ultimately come back to you. The sale of stale, or spoiled

eggs is in violation of law and parties handling the same are liable to a heavy fine. Take no chance. Besides only fresh eggs are fit for food. Stale eggs can be used in the tannery for leather making. Bakers have used them some in the past but when they do so now are violators of law besides are putting out an article unfit for food.

I would like to be a farmer said an acquaintance, recently, with nothing to do but put in my seed and watch the crop grow; with no anxiety or worry, but a good income assured each year. How little this man knew of the real conditions: wet springs, dry summers, grasshoppers galore, plant diseases, wilt for the flax, rust for the wheat, smut for the grains, rot for the potatoes. O yes, no worry for the farmer. The crop of wheat is nearly ready for harvest. Look at that cloud hovering over the western horizon, its gathering blackness, the wind, the hail token and see the farmer how unconcerned he is as he sits and smokes his cigar. No worry for the farmer under these conditions? Oh, you fool, to think that all the worry is in your business. The farmer has more than his share.

If you are out carousing nights, abusing yourself, then you are not much good, so if you abuse your soil in the end you must pay the penalty, and future generations must suffer. Remember that legislation for conserving our land may seem farcial, but this policy would in the end bring wealth to our people when we follow this principle properly not blindly. There is lots of truth in what Sayre says:

For every \$1,000 worth produced

of Wheat	\$240.	fertility is lost
of Beef	85.	fertility is lost
of Pork	60.	fertility is lost
of Horses	35.	fertility is lost
of Cream	15.	fertility is lost
of Butter	1.25	fertility is lost

There is nothing that will keep up soil fertility, and bank accounts, better than GOOD COWS, in clean, pure-air stables, with large window to each cow and clean cement or asphalt paved cow-yard outside, with comfortable covered runway near by, good care, good feed and plenty of PURE FRESH WATER three times a day.

Cow milking farmers do not borrow money from bankers—they loan money to bankers, and others; they live in elegant homes, and don't swear. The supply of GOOD butter, cheese, pure milk, cream, pork, poultry, eggs, small fruits, vegetables, honey, feathers, flowers, melons, blooded cows, hogs and calves has never equaled the demand, to say nothing of a better class of boys and girls—home grown—for husbands, wives, and high grade citizens.

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FARM AND STOCK NOTES

Economy in feeding does not mean stinting.

A permanent sod is injurious to most varieties of fruits.

Regularity of feeding is a great factor in the growth and cost of fattening.

There is as much in knowing what to plant as how to plant and cultivate.

Everything which tends to diversify agriculture is of benefit to all who are engaged in the occupation.

The more grain animals have to consume to maintain bodily heat the less gain they will make from it.

Make the farm both a producer and a manufacturer and the labor account and the by-products should all swell the farm's production.

Regularity in feeding and work makes long-lived horses.

The best products of the farm have the least competition.

The offspring of immature or pampered animals is predisposed to disease.

The younger an animal the greater its increase in proportion to food consumed.

It is never wise or profitable to keep any animal in poor flesh.

The best time to make the coming horse tractable is while he is young.

As a rule it is better to grow into a special branch of farming than to go in to it.

The only sure road to success in raising swine is in keeping the pigs healthy and constantly growing.

Cheap feed is the best feed so com-

size the more profitable it is to the owner.

The great secret of making money out of hogs is to raise the pigs rapidly and keep them growing. The moment the animal stops growing he commences to lose money for his owner.

In nearly all cases it is more economical to buy a machine or implement that never needs to be taxed to its full strength than to buy a cheap light thing and then be constantly tinkering with it.

When the farmer churns his milk and sells butter only or when he uses a separator and sells his cream he does not deprive his soil of fertility. The skim milk and buttermilk can be fed to pigs and poultry with profit. Few things, however, rob the soil faster than the selling of whole milk.

There are four essentials in making money in the dairy business: good cows; feeding them well; having their milk well manufactured; and selling the product well.

When a mature animal is supplied with more food than is required for repair of waste and production of heat and energy the surplus material is converted into fat.

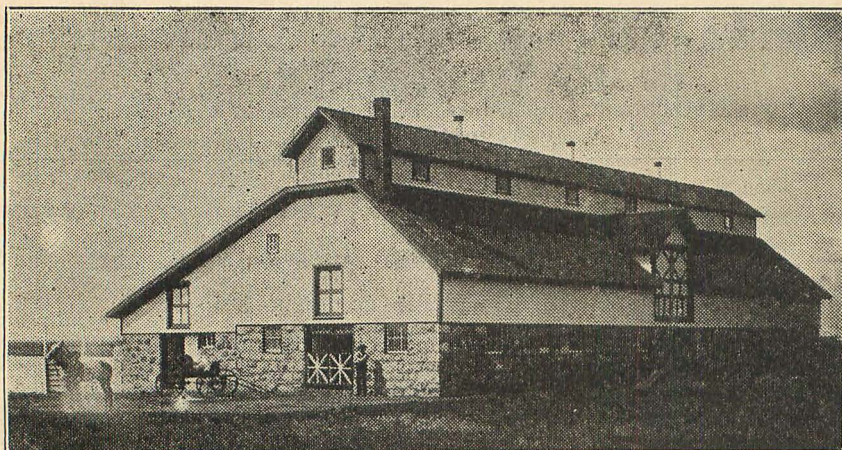
The question of profit in the poultry yard hinges not on breeds but on birds. Breeds have certain characteristics, but it is the individual which pays or fails to pay.

The draft horse does the work on the farm most satisfactorily and with less expense and worry, sells higher and more readily and costs less to get him ready for market.

Neatness is largely a habit, and the farmer who becomes accustomed to having everything in order will perform all of the necessary work with less care than the owner who finds everything in disorder and confusion.

Considerable loss is occasioned on many farms every year in allowing crops to become too ripe before harvesting. This is especially true of grass or clover or any crop intended for hay or as a substitute. With grasses when the seed begins to form well and with grain crops when the grain begins to harden is the best stage to harvest.

Generally the best profits from the farm can be derived by growing a variety of crops, and then feeding them out to a variety of good growing stock on the farm and marketing. In this way the risks of failure are lessened and the various products can be used to the best advantage.



Frank Peltres's Barn Rolette County.

Generally the more nearly all the work can be done with the regular help of the farm the more profitable the work can be made.

Breed alone does not put a work of nobility in all of the animals that are registered. It is simply an indication of quality. Individuality alone counts.

The better condition in which the farm tools are kept the less effort required on the part of the teams and on the part of the workman.

Slow and careless driving makes lazy horses.

Wearing shoes too long injures the horses feet.

Knowledge is greater than physical force in farming.

The best wealth is the fertility of the farm.

bined as to produce the best results for the least money outlay.

Variety in the food is more than half the secret of egg-production, and it is much cheaper to raise these foods on the farm than to buy them.

Hogs will derive benefit from more kinds of food and kinds which other animals will not eat than any other class of stock.

It takes cream to make butter. Cream and milk together sour more rapidly than pure cream will and do not make nearly as good butter.

Breed the sows so as to have the pigs come early in the fall so that they can make a good start to grow before cold weather sets in.

Hogs are raised only for their flesh and the fewest days it takes a pig to accumulate enough to be of marketable

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It is sometimes just as important to retain moisture in the soil as it is at other times to get rid of it. This may be done by keeping the soil constantly loose with the cultivator, the fine soil on the surface serving as a covering or mulch, and thereby preventing rapid evaporation.

The number of times cultivation should be given and how long it should be kept up must be largely determined by the season, and the growth of the plants. Generally the cultivation should be sufficiently frequent to keep the weeds down and the soil in good tilth, and should be continued until the crop can be considered safe, always leaving the surface of the soil fine and mellow.

The business of the dairy cow is to consume and digest and turn into milk, large quantities of milk-producing food, and the more of this kind of food she is able to consume and utilize the more profitable she is as a dairy cow.

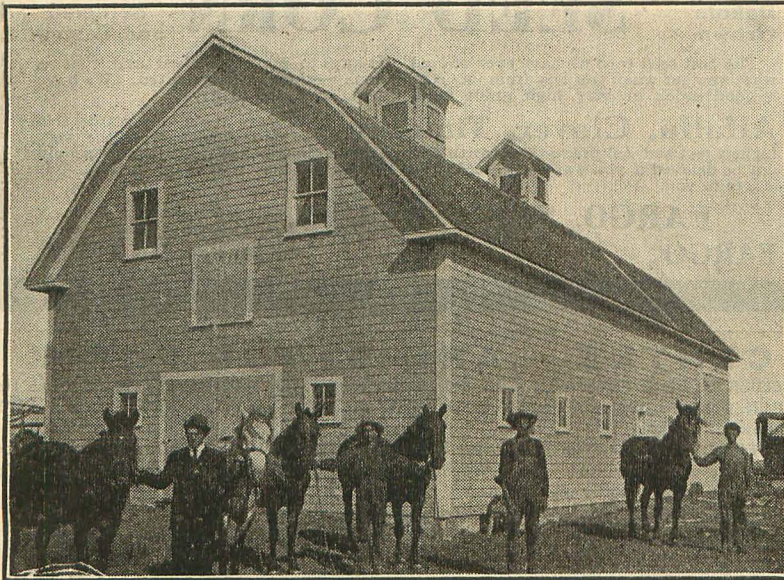
The average income per acre from clover forage was \$34.11, from rape and oats \$23.63, from corn and cowpeas \$29.08 and from blue-grass \$17.71.

The estimates are all made on the basis of 60 cents a bushel for the corn fed and 6 cents a pound for the pork produced. The results are important as indicating what may be accomplished when the hogs themselves do all the harvesting.

This bulletin, which is numbered 95 was written by Dean F. B. Mumford and C. A. Willson and can be had on request by writing to the Director of the Experiment Station, Columbia, Missouri.

A WELL-BALANCED RATION

Alfalfa and clover hay are rich in the nutrients that build up muscle, while corn is poor in them—but rich in the



Barn of Oliver Boucher near Thorne, N. D.

There are two reasons why the older and larger the animal becomes, the more pounds of food required per pound of gain. One of these is: in young and immature animals, the appetite, digestive and assimilative functions are much more active than when the animal approaches maturity, and the other is: while the animal is young and growing vigorously the percentage of waste in the system is less than at and after maturity.

MONEY FROM HOGS ON FORAGE

The Missouri Experiment Station has just given out the results of an experiment lasting three years which shows large profits from feeding hogs on forage crops.

fat and heat producing nutrients. Fed together they form a balanced food. Ten to twelve pounds of alfalfa with eight to ten pounds ground corn, and whatever corn stover the animal wants, makes a good ration, and one that can be raised on the farm. One of the best ways to handle the corn is in the silo—and especially for dairy cattle. For beef cattle alfalfa and corn fodder make a good ration.

WIRE CUTS

By Geo. H. Glover of Colorado A. C.

Farm animals are frequently cut with wire. When the injury is severe it will pay to employ a veterinarian to dress the wound. Where

CLASSIFIED ADS.

One Cent a Word

Small advertisements will be classified under appropriate headings at the low price of one cent a word for each insertion. Cash must accompany all orders. Each initial or number must count as one word. TRY IT HERE.

LIVE STOCK

HORSES

FOR SALE

Percheron, Belgian and Shire horses
J. W. & F. T. PETERSON, Litchfield, Minn.

CATTLE

North Branch Stock Farm. High class Short-horns. Herd, bull, Supreme Judge 177722—pure Scotch, John Donnelly, Grafton, N. D.

FOR SALE

GALLOWAY CATTLE
J. W. & F. T. PETERSON, Litchfield, Minn.

SWINE

POLAND CHINA PIGS, also Shropshire sheep. Seed grain. GEO. N. SMITH, Amana, N. D.

EGGS AND POULTRY

EGGS FOR HATCHING, Express prepaid, \$2 per 15, from pure bred Golden Wyandottes and White Plymouth Rocks (Fishels strain.) Choice stock for sale. Send for Catalog. C. H. McGEE, Oriska, N. D.

MISCELLANEOUS

Envilla Stock Farm, Cogswell N. D. will quote you special prices on Angus Cattle, Shetland Ponies, Duroc Jersey Hogs, Wolf and Fox Hounds, Pure Bred Poultry, Pet Stock. Write them.

FOR SALE One of the finest and best improved farms in this county, 3½ miles from Bowbells, part cash, worth \$5,000, for \$3,900. H. L. Lyon, Bowbells, N. D.

THE MOUSE RIVER LAND AND LOAN COMPANY AND THE MOHALL STATE BANK

At Mohall, Renville County, North Dakota, have a large list of farm lands for sale, and terms and prices are better than in any other part of North Dakota. They would be glad to have you write them for prices and terms. Our slogan is, "Own your own home in the Mouse River Loop."

FARM FOR SALE—A fine half section, broke and well improved; 3 miles from town. Owner, PERRY MOLES, Sherwood, N. D.

FOR SALE: Registered Jerseys. Bull calves and one mature Bull at reasonable prices. W. G. Weeks, Backoo, N. Dak.

RED-POLLED AND GALLOWAYS

Shropshire Bucks

J. S. BIXBY, - - LISBON, N. D.

WANTED—Young Men to take the Railway Mail Clerk examination called for the Dakotas; salary \$900, work half time, common school education required. Passing means appointment. American Institute, Dept.—68—Dayton, Ohio.

N. D. Homesteads

THE BERTHOLD RESERVATION is the choicest agricultural land in North Dakota. It will soon be opened for settlement. Send 25 cents in coin to Geo. J. Smith, United States Commissioner at Plaza, N. D. and get his valuable booklet telling all about the opening and the land. Send today.

FOR SALE. Creamery in first class condition at a bargain at Crystal, N. D. For further information write to J. S. GESTSON, Sec. CRYSTAL, N. D.

FARMS WANTED

TO FARM OWNERS: Our plan puts you into communication with buyers at low cost; write for particulars.

Co-operative Advertising Company
Fergus Falls, Minn.

the services of a competent veterinarian can not be obtained, the farmer will have to handle the case himself, and this advice is for the farmer in this predicament.

The first thing to get right is the correct point of view. By this I mean to remember that remedies used are for the purpose of assisting nature and not to cure the disease. This thought, if kept in mind, will eliminate innumerable nostrums, suggested by enterprising neighbors, and insure an opportunity for the wound to heal without harmful interference. We are still much interested in the "fountain of perpetual youth," and in the realm of medicine the laity are groping blindly in the dark, seeking the "where" instead of thoughtfully inquiring the "why."

The ordinary wound will heal if not interfered with. This interference may be from germs, parasites, meddling with the wound, on the part of the man or the animal itself.

The first thing to do, of course, would be to stop the hemorrhage. This can be accomplished by a tight bandage of clean, white, muslin, applied either over the wound or above it. A thread may be run under the artery by using a needle, and tied. Do not use flour, dirt, cobwebs or anything of that sort on the wound; they are unnecessary and may produce a dangerous infection.

Having checked the bleeding, remove the clots of blood and cut off the ragged edges of tissue with clean shears. A pan of antiseptic solution should be provided, and one of the best antiseptics on the farm is creolin. Add a teaspoonful of this to a pint of water that has been boiled and use it on the wound two or three times a day. Place the knife, shears, etc., in this solution, and wash the hands before beginning to dress the wound. See that there is good drainage from the wound and do not tie the wound up with covering of any kind.

In about one week it may be well to change to dry dressing. In the meantime it will be well to get in communication with some veterinarian who will advise you in the case from this time on.

I did not mention sewing up the wound for the reason that in ragged cuts it is better not to do so.

Remember that the principal thing is to get the wound healthy at the start and then it will heal with very little interference.

RELATIVE PRICES OF CREAM AND BUTTER

By G. L. Martin, Prof. of Dairying N. D. A. C.

Within recent years, it has come to be a common practice for many farmers to dispose of their cream in a sweet condition during the summer months to ice-cream factories, hotels or restaurants and the rest of the season to creameries.

For these trades it is desired that the cream should test about 20% but often the test may vary up to 40%, depending greatly upon the method of operating the hand separator. When selling cream to creameries the price is regulated at so much per pound of butterfat but

for ice-cream and hotel purposes it is customary to pay for cream by the gallon. As a consequence many dairymen are at a loss to know which is the most profitable way to dispose of their cream hence the following general formulae may serve to determine what relative price should be had per pound of butterfat or gallon of cream when sold for the various purposes:

(A) To find the value of a gallon of cream when butterfat is a certain price per pound.

ST. PAUL UNION STOCKYARDS COMPANY REPORT FOR MAY, 1911

Comparison of Receipts and Shipments of Livestock

Railroads	Receipts					Total Cars
	Cattle	Calves	Hogs	Sheep	Horses	
C. R. I. & P...	664	71	1355	524	.....	50
C. G. W.....	763	636	4762	966	53	109

North
Dakota
Grown

SEED CORN

Kiln Dried
Selected
and Tested

The best seed corn we have ever offered. It pays to plant the best and that is what you get when you buy from us. Order today—the supply is limited. We have a good stock of very high grade seed wheat, oats and barley.

Alfalfa, Clover, Timothy and grass seeds are scarce this year, but our stock is the very highest test and will prove their worth when harvest time comes. Your order should not be delayed if you want good seed. Send today for our 1911 seed catalog. It is free to you.

FARGO SEED HOUSE, Dealers in strictly high-grade seeds
FARGO, - - - NORTH DAKOTA

CENTRE-LANE STOCK FARM

BREEDER OF: Black Percheron and Hambletonian Horses, Red Polled Cattle, Poland China Hogs, White P. R. Chickens, White Holland Turkeys, White Embden Geese, White Pekin Ducks and White Guinea Fowls.

GROWER OF: Minnesota No. 169, Spring Wheat, Swedish Select Oats, White Hulless and Success Beardless Barley, Turkey Red Winter Wheat, N. D. 959 Winter Rye, Northwestern Dent Corn, Early Ohio Potatoes, Timothy and Alfalfa.

Young Stock and Pure Seed, for sale. Write me for particulars.

J. A. ENGLUND, Prop.

Kenmare, North Dakota.

THE ENVILLA STOCK FARM

COGSWELL, NORTH DAKOTA

SHETLAND PONIES. Your own price.

REGISTERED ANGUS CATTLE. Must be sold.

WOLF AND FOX HOUNDS that will catch and kill. Fine pups \$5.00 each

PET STOCK OF ALL KINDS. PURE BRED POULTRY, all varieties.

We can please you both in Quality and Price

L. H. WHITE, Prop.

COGSWELL, N. D.

North Dakota Breeders

We Are With You

Why not send for special rates at once

Address **NORTH DAKOTA FARMER, LISBON, N. D.**

Formula: $(8 \times \% \text{ B. F. in cream}) \times$
(price per lb. B. F.) = price per gal.

Example: At what price per gallon
ought 20% cream to sell when butterfat
is worth 30 cents per pound.

Substitute in Formula: 8 (wt. of gal.
cream) $\times 20\%$ B. F. (per cent butterfat
in cream) $\times 30$ cents = 48 cents per gal.

(B) To find the relative price per
pound for butterfat when the price per
gallon of cream is known.

Formula: (price per gallon cream) $\div$
 $(8 \times \% \text{ B. F. in cream})$ = Price per pound
butter fat.

Example: What price per pound ought
butterfat to sell for when 20% cream
sells for 80 cents per gal.

Substitute in formula: 80 cents $\div$
8 lb. $\times .20$ = 50 cents per lb.

(C) To find the relative price per
gallon of cream containing different
percentages of butterfat.

Formula: (Per cent B. F. in desired
cream $\times$ price per gal. known cream) $\div$
(Per cent B. F. in cream of known price)
= Price per gal.

Example: If cream containing 20%
butterfat is worth 80 cents per gal. what
is 25% cream worth per gal.?

Substitute in formula: $25\% \times 80$ cents
 $\div .20$ = \$1.00 Price per gal.

Often times it is customary to esti-
mate the price of cream with varying
amounts of butterfat by allowing as
many cents per quart as the cream tests
in per cent, as

15% cream 15 cts. per qt. 60 cts. per gal.
20% cream 20 cts. per qt., 80 cts. per gal.
22% cream 22 cts. per qt. 88 cts. pr gal.
25% cream 25% per qt., \$1.00 per gal.

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's Caustic Balsam

IT HAS NO EQUAL

For the Human Body
—It is penetrat-
ing, soothing and
healing, and for all Old
Sores, Bruises, or
Wounds, Felons,
Exterior Cancers, Boils,
Corns and
Bunions.
CAUSTIC BALSAM has
no equal as
a Liniment.

We would say to all
who buy it that it does
not contain a particle
of poisonous substance
and therefore no harm
can result from its ex-
ternal use. Persistent,
thorough use will cure
many old or chronic
ailments and it can be
used on any case that
requires an outward
application with
perfect safety.

**Perfectly Safe
and
Reliable Remedy
for
Sore Throat
Chest Cold
Backache
Neuralgia
Sprains
Strains
Lumbago
Diphtheria
Sore Lungs
Rheumatism
and
all Stiff Joints**

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did
my rheumatism more good than \$120.00 paid in
doctor's bills."
OTTO A. BEYER.

Price \$1.50 per bottle. Sold by druggists, or sent
by express prepaid. Write for Booklet R.
The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

C. M. & St. P.	3543	1605	16909	3525	68	412
M. & St. L....	2360	928	12574	370	.....	253
C., St. P. M. & O	2938	1657	23197	981	4	466
C. B. & Q....	173	280	1377	856	.....	33
M. St. P. & S. S. M.	2163	2874	6469	426	.....	184
Gt. Nor.....	4876	4791	16503	803	19	425
Nor. Pac.....	1569	1153	2856	33	442	117
St. P. B. & T	.....	.....	.....	.....	.....	.....
Driven In....	1000	89	1649	449	56	.....
Total.....	20049	14084	87651	8933	642	2049
Increase.....	.....	1743	18930	.....	40	182
Decrease.....	342	.....	.....	126	.....	.....
Jan. 1 to date	112691	54826	426320	87751	1995	10602
Increase.....	6129	17203	126078	.....	.....	1479
Decrease.....	.....	.....	.....	43084	585	.....
Average Wts.	748	148	221	91	.....	.....

Shipments

C. R. I. & P...	527	794	.....	.....	.....	28
C. G. W.....	1399	251	109	25	70	56
C. M. & St. P.	4495	627	19777	886	126	349
M. & St. L. .	480	307	.....	.....	18	22
C. St. P. M. & O.	2815	1476	6720	599	57	200
C. B. & Q....	1335	1103	.....	.....	258	63
M. St. P. & S. S. M.	1268	84	114	783	43	54
Gt. Nor.....	503	266	.....	.....	3	22
Nor. Pac.....	816	371	79	253	15	39
St. P. B. & T...	.....	.....	.....	.....	.....	.....
Driven Out..	395	417	119	74	69	.....
Total.....	14033	5694	26918	2620	659	833
Increase.....	1668	1788	14430	163	.....	227
Decrease.....	.....	.....	.....	.....	21	.....
Jan. 1 to date.	72570	20382	120688	44670	2054	3906
Increase.....	8725	7881	64699	.....	.....	699
Decrease.....	.....	.....	.....	36994	815	.....

Comparison of the Origin and Disposition of Livestock

Origin of Livestock Received

States	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
Minnesota....	16754	12209	71704	8334	91	1678
Wisconsin....	845	1173	5107	398	2	115
Iowa.....	188	.....	218	.....	39	12
Far South....	47	.....	.....	.....	.....	2
So. Dakota ..	604	158	6653	15	44	112
No. Dakota..	1579	407	3944	186	24	111
Montana.....	.....	.....	.....	.....	389	14
Far West....	.....	.....	.....	.....	53	2
Man. & N. W. T.....	.....	.....	.....	.....	.....	.....
Far East....	.....	.....	.....	.....	.....	.....
Returned....	32	137	25	.....	.....	3
Totals.....	20049	14084	87651	8933	642	2049

Disposition of Livestock

S. St. Paul pkrs	5263	9142	61111	8943	.....	.....
Cy. & St. Butch	441	285	608	858	.....	34
Outside Pckrs	41	838	24380	247	.....	259
Minnesota....	3375	1085	132	144	237	136
Wisconsin....	3547	211	628	420	3	124
Iowa.....	3042	1333	109	263	31	104
Nebraska....	183	305	.....	.....	.....	10
Kans. & Mo..	74	.....	.....	.....	.....	2
So. Dakota....	409	239	.....	.....	.....	18
No. Dakota ..	233	97	.....	.....	10	10
Mont. & West	22	8	.....	.....	.....	1
Far South ...	.....	.....	.....	.....	.....	.....
Man. & N. W. T.....	.....	.....	.....	237	4	2
Mich. & E. Can	219	4	.....	215	226	16
Chicago.....	573	.....	93	236	.....	23
Ills (ex Chicago)	1675	1143	120	.....	54	73
Eastern Points	167	9	823	.....	94	18
Returned....	32	137	25	.....	.....	3
Totals.....	14033	5694	26918	2620	659	833

Poultry Department

Geo. Hausmann, Hillsboro, N. D.

A NORTH DAKOTA WOMAN'S EXPERIENCE IN RAISING POULTRY

By Miss Maude Mathews on Woman's
Day at Grain Growers Convention
(Concluded from May)

How to Produce Winter Laying Hens

How are we to produce these winter laying pullets and hens from year to year? If we wish a winter laying strain of birds we must breed from hens that have proven good layers in winter. These hens mated to a male whose mother was a winter layer should produce the desired effect. But how are we to know these layers? The very best method is by using trap nests, a nest which, having a door of some kind which the hen moves in such a way in entering the nest that it is closed and shuts her in until the keeper lets her out. In breeding up a flock it is necessary to use leg bands to identify the hen.

Surprising Results

Last winter I had a few trap nests made and installed one or two in each pen. What did I find? Some surprising results to be sure.

One hen that had the previous year for its owner averaged over 20 eggs per month for the year did not lay one egg during the nine months I kept her. She lost her head. Another hen of great show qualities produced four eggs of which one hatched but but failed to live. I think the cause was too much fat as I could not seem to reduce her flesh until the moulting season came. Another show bird laid nearly every day up to August without setting and nearly all her eggs hatched. After a few days of broodiness she was at work again from January to August, when I sold her for a good price and even then I have regretted the sale ever since. Another bird, full sister to the last hen, or rather pullet, was an excellent layer but not one of her eggs hatched. By trap-nesting and marking the hen's number on the egg, the little chicks' feet marked with a poultry punch that costs a quarter, we are in position to know our young birds bred from winter layers.

Secret Methods

There are some secret methods to tell the laying hen which can be bought.

North Dakota Farmer: Fifty Cents a year; 3 yrs., \$1.00. Agents wanted.

One costs \$1 and the other \$2, yet from what I have heard they are much the same. The condition of the pelvic bones, located at the rear of the abdomen, the bones thru which the egg passes, tells the story. If these bones are close together the pullet is not laying; with a hen it indicates a poor layer; if the bones are an inch or more apart the hen either is laying or about to start in.

Many farmers have not the time to use trap-nests to any extent, still in winter the work about the farm is usually lighter and he might find the time then to prove just who the winter layers are.

By providing a small pen with nests between the pens, containing trap doors on each side of the nest, he might tell his layers thus, for when the hen is once fastened in the nest she must leave the nest by the other end, which trap would be open and closes when she leaves the nest. Then he would know from day to day just who the layers are for they would all be in the smaller pen by night.

Comparisons

If the farmer wished to enter a horse race for the 2:05 gait would he take a common every-day horse or a draft horse or procure one that has been bred from fast horses? Or if he wished to make a record for milk production would he stock his dairy with Hereford cows?

So with poultry, like produces like to a certain extent and for this reason to produce a winter laying strain we must breed from pure bred birds. A mongrel rooster may be just as pretty and crow just as loudly as the best prize winner, and cost no more to keep. The mongrel hen may scratch just as hard and cackle just as well as the winning pullet at our shows, but you can never build up a flock from mongrels alone.

Cannot Be Depended Upon

The mongrel bred flock, all sizes, colors and shapes, with the mixture of so many strains, fighting for dominance, cannot be depended upon to produce their like but may produce birds that resemble ancestors several times removed. So keep pure bred birds. If you have mongrels, get into pure bred birds by keeping eggs or a trio or a pen; keep these birds separate, mark their eggs so you will set all of them and do this until you

have a flock of the desired size. Add new blood by purchasing a new male every two or three years. This is the way I got my start.

You might also breed up your mongrel flock by getting a pure bred male of a good laying variety and strain and in from four to five years have a strain that is practically pure. You will enjoy your birds much more when they are all alike and it certainly will improve the looks of your farm to the passerby.

Then too, an occasional sale of a setting of eggs or a cockrel will add to the profits. Pure bred birds cost no more to keep than mongrel ones. But there is a better market for any stock of uniform type than for all sizes and grades. So with poultry and eggs.

Weight Differences

I sold some dressed poultry at 15 cents per pound. One mongrel hen that had developed the Leghorn type due to some we had had about fifteen years before, dressed 1½ pounds, while a pure bred cull male 4½ months old dressed seven pounds. Quite a difference in the pocketbook; it took no more care to produce one than the other, and no more time to prepare for the market either.

The farmer needs a bird that will produce meat as well as eggs, so he should have one of the varieties that weight from seven to ten pounds when a year old and he can procure a laying strain of such birds. Any of the Wyandottes, Rocks, Orpingtons or Rhode Island Reds are the birds for the farmers. You don't have to kill two or three of these for a family dinner, while some of them might make two dinners for you.

How to Keep Winter Layers

Now we have our flocks of winter layers, where are we to keep them? In a house free from drafts, well lighted, and well ventilated. The house need not be an expensive one. A good grade of lumber if only one thickness is to be used but if sided or covered with a prepared paper a cheaper grade may be used. My own poultry house is one made out of another building we had so it is not just as I would build a new one.

Don't build too high, seven feet in front and five back is high enough, or eight by six feet if you are tall and want to stand up in all parts. The less height the less space for the hens to keep warm during the cold weather. If your house is high, better put in a loft filled with straw for the winter. This will help absorb moisture

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

and keep the house warmer. Plenty of light is essential. Have windows high enough so when we have our strong winds there will be no drafts on the floor; have the windows so the sun will reach the other wall for sunlight is the cheapest and best disinfectant we can get. Part of the windows may be covered with duck or heavy muslin to ventilate at all times without a draft. This will also help to keep a house dry. A cold dry house is much healthier for poultry than a warm damp house.

Should Swing In

If windows can be hinged, swung in and fastened to the wall, or have them so they can be raised on moderate days and let the sunshine in upon the birds. Even on these below-zero days we have been having if the wind is not from the side the windows are on, you can open these windows and let the sun in and you will find your birds scratching in the sunshine. Often the frost on the glass keeps the sun out of the houses for days and chickens do love sunshine.

Have roosts hinged so they can be hung up out of the way at cleaning time, or else fitted into grooves upon horses and these can be moved and carried out of doors if necessary. Many people prefer a dropping board. Be sure you cover this with dirt or sifted coal ashes and clean off every few days, every day would be better. One party covers this board with a piece of linoleum which can be carried out and scrubbed if necessary. If you have a dropping board have that hinged also, about six inches under the roost and two or two and a half feet from the floor. Cover the floor with litter, straw is cheapest and easiest for the farmer to use for this.

Dust Floor Preferred

I prefer a good dust floor. If possible it would be well now that rats are with us to have a good deep and wide foundation of cement, but I think a cement floor would be very cold.

Every summer I have the dust floor spaded and turned over and then a new supply of sand and gravel put in for several inches. This is covered with straw from 8 to 12 inches deep. It ought to be cleaned out every week and fresh straw put in.

Have your nests so they can be easily cleaned. I like boxes about like one section of an orange box for nests. These can be destroyed and new ones put in often. If you have a section of continuous nests have the top board on hinges so with the raising of one board you can get at the inside of all the nests.

Curtain of Burlap Good

For very cold weather a curtain made of burlap or gunnysack hung in

front of the roosts will keep the hens more comfortable at night and protect the combs from frost.

Have your house face the south, upon a well-drained spot, not too near to the other buildings that they will keep a bit of the sun from shining in the chicken house until the sun has set, for in the winter time we need all the sun we can get. If possible partition your house so you can keep the chickens in flocks of 25 to 50, a better egg yield will result. Your layers will do better without a male with them until about ten days before you wish to set the eggs.

One winter my hens were laying splendidly when upon the same feed as they had each day, they fell off 30 eggs in one day. I could not account for it and then I counted the roosters and found I had 35, one for every three or four hens. Too many males is one of the troubles with the farmer flock. If you keep surplus males be sure and pen them by themselves. One reason why the farm flocks usually contains so many more males than are good or needed is having the feed without an actual cash outlay.

Construction of House

Previous winters my poultry house has been banked with manure. This year I had posts set in the ground about one foot from the house on the north, some old woven wire fencing stretched upon the three posts and the space filled up with straw. I consider this an improvement for it took less time to fix it than to bank with manure. There is a certain amount of moisture in the manure and that and the smell both penetrate into the house.

Colony houses I think would be excellent. They could be put in the fields after harvest and the chickens about pick up all their living from that which would be wasted. In the winter these houses could be hauled in and placed near the farm buildings.

Farmers near to towns or railroads need the windows of their chicken houses barred with iron rods. A screen to keep out foxes and cats I found necessary the past season, and locks on the doors else you might be thus greeted:

"Good morning, Tom, your hens are gone;
Your cocks will crow no more;
You went to bed, you sleepy head,
And forgot to lock the door."

Houses Locked Every Night

My houses are locked every night the year round and during the past

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

hobo season two of our St. Bernard dogs slept in them.

A fight is necessary to keep down the vermin. I never saw a mite. I

S. C. Buff Orpington S. C. Black Orpington

M. Bronze Turkeys, M. Pekins Ducks and Indian Runner Ducks.

"THE BEST IN THE WEST"

Maude I. Matthews, Box 579

Larimore

N. Dak.

BARRED ROCK

Choice Stock and Fair Treatment.

ROBERT B. REED

Box 2.

Amenia, N. D.

BUFF WYANDOTTE EGGS for hatching, Fowls for sale. Also twelve breeds of Fancy Pig cons. M. B. NOBLE, Hillsboro, N. Dak.

PETERSON'S BARRED ROCK

Bred to Lay and Win. Won over 90 prizes. Eggs from utility stock \$5.00 per 50 \$8.00 per 100. Mating list free. PETERSON BROS. Harwood, N. D.

HAUSMANN POULTRY FARM

Breeders of W. Wyandottes and S. C. W. Leghorns Hillsboro, - North Dakota

PURE WHITE WYANDOTTE EGGS for hatching \$1.50 for 15, \$7.00 for 100, \$14.00 for 220. E. A. Tow, Lisbon, N. Dak.

S. C. W. LEGHORNS

Prize winners' stock for sale. Eggs a specialty. GEO. A. FOWLER, Box 486, Casselton, N. D.

SILVER LACED WYANDOTTES

Thoroughbred, Wide Open Laced, Big Utility Birds, Bred for Business. Tested Fertile Eggs for Hatching, 15 \$1.50; 30 \$2.75; 45 \$4.00; 100 \$8.00. Satisfaction Guaranteed.

Anthony Elm, Lansford, N. D.

WHITE WYANDOTTE eggs for sale from good stock.

M. C. JAMES, Valley City, N. D.

POULTRY BRED FOR LAYING

See my big circular before you place that order for eggs. It will please you. It's free, 2 cent stamp for mailing. Mrs. B. F. Wilcoxon, Hillsdale, Wyo. Dept. 5.

WHITE AND BUFF WYANDOTTES that always win. Choice stock for sale. EGGS for hatching from pens of well-selected stock, sure to produce winners. Prices reasonable. Satisfaction absolutely guaranteed. Write me your wants. L. O. CUMMINS, Casselton, North Dakota

FOR SALE. M. B. Turkey Toms, raised from our Diploma Stock, \$5.00 and up; also Eggs from 26 varieties poultry. Catalog free. L. GULDEN, Osakis, Minn.

Rose Comb Black Minorcas

Eggs for sale, \$2 for 15 eggs.

C. WYSH, CASSELTION, N. D.

PURE BRED WHITE PLYMOUTH ROCKS Eggs at \$1.50 per 15, \$8.00 per 100. Eggs from R. C. Brown Leghorns at \$1.25 per 15, \$7.00 per 100. Eggs strictly fresh and fertile. L. G. Gemmill, Edinburg, N. D.

do see lice but some powder and a box of dust or sifted coal ashes will clean them out. Never use wood ashes because sometimes the chickens get their feet wet and when the damp feet come in contact with the wood ashes, it becomes a lye and the legs are burned. In slacked lime scattered upon the floors or sifted coal ashes, when the weekly cleaning is done and before the fresh litter goes in, help purify the air and disinfect the house as well as absorb any moisture there should be there.

Bed Bug is Pest

My greatest pest is the bed bug in the lumber. Last summer it seemed a continual fight. I have my houses whitewashed twice a year, put on with a sprayer, which every farmer should have. I found the men disliked the whitewashing when done with a brush, broom or some kinds of sprayers, but if you get one you can do the work yourself if necessary, for I have used mine many times while waiting the convenient season of getting the man. An occasional spraying with kerosene, emulsion or any of the coal tar products keeps the house clean, healthy and comparatively free from disease.

Clean Houses Regularly

You cannot have healthy poultry or winter eggs unless the houses are regularly cleaned.

Do not keep more hens than can conveniently scratch upon the floor. Fewer hens will give better results than too many. Too many chickens for the size of the house is the usual cause of few eggs in winter. A house 10 by 12 would accommodate twenty to thirty. Do not keep hens over two years old unless some especially fine mother or layer. Yearling hens and pullets will give the farmer more eggs than a flock of all ages. After the snow is on the ground never let your laying stock out. Open doors and windows if weather permits, being careful of drafts, but keep the hens on clean dry litter.

Even if we have a laying strain and a comfortable house for it, without the proper feed it profiteth one nothing.

"What do you feed your chickens on?" asked an amateur.

"On yeast," was the reply.

"Why do you feed them on yeast?" queried the amateur.

"So as to raise them," was the reply.

Feed on "Yeast"

We have ours now raised so need something different from yeast.

To secure the proper results chickens must have the right amount of food of the right kind at the right time.

A correspondent-representative wanted in every county. Write for terms.

What will do for one flock may be wrong for another. What would do for summer feeding would not do as well for winter.

A certain amount of food is necessary to keep a bird alive. What she receives and can make use of beyond the quantity necessary to retain life, will be used toward the production of eggs.

Eggs are about three-quarters water, so how essential it is then that the hen has all the water she needs for that egg! Not water that is dirty or icy, but clean, pure water with the chill off if possible in winter.

The dairy cow with the big milk record is often watered five times a day with luke warm water in winter. Every drop of icy water helps chill the hen and so much food is necessary to offset that chill before she can do good work. So give the hen a fresh drink in clean troughs about three times a day, water with the chill off will pay.

Give Poultry Warm Drinks

The majority of chicken houses are quite near the farm house so it is an easier matter then to give the warm drink than it is for one whose chicken house is the distance of a good long city block from our house and so far this winter I have given them all their feed and water and when I do not take down warm feed I take hot water which soon cools when put in the cold troughs. We have a tank heater in our water tank and cover for the tank so the cows can have water with the chill off; so I get most of the water there which is near to the chicken house.

Having furnished the required water, we must also furnish the other materials for egg production.

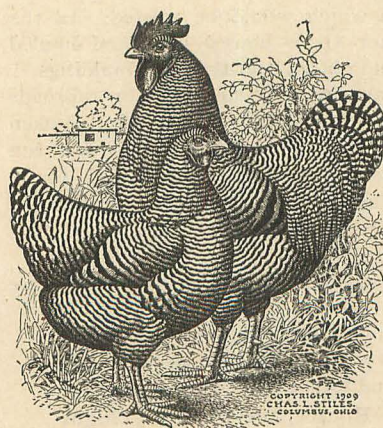
There are three prime elements that are necessary to a balanced poultry feed, i. e., protein, carbohydrates (including fat) and ash.

Protein, the most important element in feeding, makes muscle, flesh, blood, hence a good growing food, also replaces tissues. A ration lacking protein is an unbalanced ration. Protein is used in forming the white of the egg, so we must have enough protein in our ration to keep our birds in condition and to help make the white of the egg.

The yolk is composed of fat, so we must furnish the pasthydrates that furnish the heat and energy of the body and also enough of it besides to supply the yolk of the egg. The third element, ash, the mineral portion of the feed makes the bones and egg shells.

Mixed With Mash

We may furnish all these elements in a mash that can be fed wet or, as many are now doing, dry in hoppers or self feeders where the birds can help themselves at all times. Feeding this mash or feed ground aids the hen in that this feed does not use her energies up in the grinding, but she can use those energies toward the work of egg production. A wet mash is apt to be injurious if fed in a sloppy state. It should be mixed stiff enough to hold well together. I use the hopper method with an occasional noon feed of boiled vegetables thickened with bran or the mixed mash. For forcing for eggs: 200 pounds bran, 100 pounds corn meal, 100 pounds middlings, 100 pounds beef scraps, 100 pounds gluten, 50 pounds linseed meal is a mash much used but rather too forcing for hens used as breeders as it is apt to reduce the vitality of the egg and chick.



Harty's Barred and White Rocks

Eggs \$2.00 per setting

\$5.00 for 50

From Very Choice, Carefully Selected Pens.

H. C. HARTY,

Omeme, North Dakota

North Dakota Institutes MUST NOT STOP

On Page 2 the North Dakota Farmer makes a liberal offer to all who wish to help keep the Institutes going. Are you with us? Do it now.

A Revolution in Rural Education

By Herbert L. Quick in Success

When Roosevelt's Country Life Commission was alive—we'll have another one of these days!—it laid down and made orthodox this postulate of rural progress: The welfare of rural life demands a new kind of rural school!

And of all places in the world, the country is the place for the child to make intellectual advancement. It can't help learning lots more of the really important things of life than can the city child. It sees the yearly miracle of seed-time and harvest. It sees the breast of Mother Nature bared to the suckling lips of a hungry race. It hears the birds' songs, and sees their immemorial household economy. It has a part in the only business left to us, in which food, shelter and clothing are produced visibly before the family eye as a part of the family task. When it ceases creeping, it toddles out into a kindergarten as wide as the horizon, as brilliant as the sun, as fragrant as the rose, and as free as air. And yet the country child, over most of this nation, must go to schools so poor that it is placed at a disadvantage when compared with the city child. Over most of this nation, must go to schools so poor that it is placed at a disadvantage when compared with the city child. One of the strongest influences that draw country people to the city—I think the very strongest—is the desire to place the children where they "can have better schooling."

Does it astonish you? If you do not know country life, you have a right to be astonished, seeing that this is America. New England is the mother of American progress in her gift to us of the free school—and the free schools of Old New England were in the main rural schools. The "deestrick" school will some day be celebrated in verse and smothered in history, if it has its due. Tolstoy said that it is America's greatest gift to the world. And it is—greater than the cotton gin, greater than the telegraph, greater than tamed electricity, greater than the press, greater than emancipation, greater than the sewing machine, greater than the reaper, greater than the steel plow, greater than the twinned rails shining from coast to coast, greater than these and their kind, all together and multiplied; because the "deestrick" school has made all these possible.

But the rural school has degenerated. I don't assert that it is worse than it was seventy-five years ago—in fact I suppose it is absolutely better in many respects. In others it is absolutely

worse. It does not attract teachers of the character then engaged in rural school work. There are other things that pay better for the bright boys and girls. Its salaries are no higher—or not much higher—than then, and folk that lead in any community need more money than then. So the rural teacher does not lead any more. Methods have improved, but good methods are not automatic teaching agencies. Personality, and even more than that, ideals and spiritual activity are needed. Lacking these, the rural schools are, perhaps, absolutely poorer than they were half a century ago. And relatively, they are nowhere as compared with the progressive city schools. Rural life suffers from competition—the competition of the city, and therefore suffers not more from its schools remaining unprogressive, than by the rapid progress made by urban schools. Such are the considerations, in part, that impelled the Country Life Commission to say that we need a new kind of rural school.

And while the Commission was engaged in its investigations, the new kind of rural school was germinating. When God gets ready for change, he produces not a single change, but conditions that make for mutations. When the reptiles began to evolve into birds, I suppose they did it, not in one case alone, but here and there, hither and yon, going and coming, and from Dan to Beersheba, until the air was thick with birds, and the reptiles acquired their sempiternal and ill nature thru being supplanted and overshadowed by avian forms. Similarly the very thought-waves that impinged on the brains of the Country Life Commission and made them say that the schools should be made over, doubtless touched thousands of other brains, and worked evolution in many schools. Mr. Benson of Wright County, Iowa, was fervid with the spirit of prophecy, and has now gone to Washington to work for the Department of Agriculture in the interests of good rural schools. The County Superintendent of Lake County, North Carolina, is another prophet of the merger of the work of the farm with the life of the rural school. I met a teacher in Page County, Iowa, Mrs. Huftalen of the Norwich school, who in Delaware County in that state, years ago was making the new rural school as well as the peo-

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ple would let her. Dr. Sanford A. Knapp of the Department of Agriculture was ready for his enrollment of 46,000 Southern country boys in corn growing clubs, so as to give agriculture in the rural schools a footing in plowed ground. The reptilian stage of the country school was ripe to change for the avian, fangs were trying to evolve into beaks and scales into feathers. There were agitators in many places. But I think the great prophet of the new era, the greatest person in the educational world, is Miss Jessie Field of Page County, Iowa, Superintendent of Schools.

She was a country teacher and a pupil of the rural schools of this county in southwestern Iowa. Her family is related to the great Field family whereof Cyrus W., Stephen J., Henry M., and David Dudley Field are the first to be thought of, but to whom should be added Susan B. Anthony, the Anthonys of Kansas, and David J. Brewer. Jessie Field's grandfather took up a farm in Page County when it was prairie. She was teaching in Montana when a vacancy occurred in the office of County Superintendent of schools—an elective office. She had brothers in Page County, who said, "Go to! Why isn't Jessie the proper person for County Superintendent?" They wrote an insurgent platform for her—insurgent educationally—and nominated her. She did not come home to make a campaign, but she was elected. Then she came home.

Page County before the Revolution

She found the schools decadent, inferior, and as competitors for the favor of parents and children, whipped by the town schools. Just why ninety-seven other County Superintendents in Iowa and an almost proportionate number of similar officers in the other states, were willing to stay whipped and inferior, while Jessie Field rose and fought, who can say. She told me that when she visited the schools, the children used to slink behind the buildings and peer at her as if they had been wild, or she an animal in a zoo, and unsuspected of being dangerous. The school buildings were abominable, she tells us, and the people who sent pupils to them were always wishing that their children might have the "advantages" of city schooling.

Do you wonder that the rural population in the old and rich states is falling off?

Don't think for a moment that Page County, before Miss Field's advent was a sort of country-school slum. Not at all. It was probably in better case than most counties—than your county, perhaps. The schoolhouses were not fit for the uses of children in this twentieth century; but are yours?

Now a person of genius of the soaring and commanding sort, in Miss

Field's place, would have written for the educational press on the need for better school facilities, and wordily advocated the consolidated rural school, and township high schools. Undoubtedly, Miss Field would like to have all the rural schools consolidated into graded schools, to which the remoter pupils would be transported in public vans, free of charge. That is the way things should be done, and Miss Field knows it. She knows that every township should have its high school, and therein, shops for manual training, kitchens for domestic economy, and about it, gardens and fields for agricultural training. Those things must come in every rural neighborhood before the new kind of rural school shall have fully arrived. But Miss Field's genius is not of the soaring and commanding sort. Instead of soaring, she walked with her people. Instead of commanding, she taught.

Another instance of the same sort comes to my mind as I write—an instance of two thousand years ago.

How to make the rural schools over—this was her problem. How to do this using the old, bad schoolhouses, and the old, discouraged, uninspired, defeated incompetent teaching force—and without increasing taxation. And in view of the fact that rural schools are made by rural populations, how to get the people of Page County to do the making over for themselves. Two things were perfectly plain: if the schools could be made to vibrate to the beauties of country life, they would become interesting to the pupils; and if they could be made to relate themselves to the work of farming, they would become interesting to the parents. After that taxation would adjust itself.

Easy to do? No, indeed! The most difficult thing in the world is the task of inducing people to adopt new ways of doing old things. And teaching is about the oldest thing in human experience. Yet, in five years, the rural schools of Page County, 125 of them, have been metamorphosed. Two-thirds of the teachers of the old time are there yet, but they are now competent, confident, ahead-of-the-times teachers, getting higher salaries for doing better work, and making themselves and the schools centers of social activity. The schools are still in the one-room houses, but they are motly new, architecturally—pretty, nicely decorated, well-cared-for schoolhouses. And the pupils are filled with the belief that farm life is the best life in the world, that Page County is the best place in which to live on a farm, and that the finest work in the world is that of growing the most that can be grown on a farm, and of getting the most

happiness that can be got out of rural life. The teachers are proud of being Page County country teachers. They are offered places in town and city schools, but they refuse. They like the country schools best.

In December the county farmers' institute was held at the little town of Clarinda. The schools were in the saddle in the farmers' institute. Miss Field was conducting it. There was a quarter-acre of school exhibits in the basement of the armory—corn, wheat, oats, all kinds of seeds and vegetables, models of schoolhouses and grounds, farm devices such as gates, poultry houses and piggeries, raffia work for the little ones, sewing, cookery, and every sort of domestic economy exhibits. I went into the county at this time and visited school after school. At each we called for a show of hands of those who had done something for the school exhibits at the farmers' institute. In all these schools only one pupil was found who failed to raise her hand—and that was a little girl who had entered school the day before our visit.

"What did you do for the show?" I asked of a little girl of six.

"I sent ten ears of corn, and five-buttonholes," she replied.

"I did a raffia napkin ring," said another little tot, "and I cut shingles for the schoolhouse."

The "shingles" were card-board oblongs for the model schoolhouse with which that school took the premium. These children were doing things with their hands. They were learning the beauties of the farm life. One boy had taken a prize for the best acre of corn. He grew ninety-three bushels on his farm—without fertilizers.

In Mr. Huftalen's school, I saw a big boy working with a rack of Agricultural College bulletins at his elbow, and a text book on agriculture on his desk. He was writing an essay on Raspberry Culture—and he was fortifying every statement by actual experience, either his own, or that of other raspberry students. He said that the text book was good enough in its way, but give him the bulletins—they went to the bottom of the subject. No superficial information for him!

Mathematics and Fertilizer

They have an arithmetic of their own in Page County. In it are problems of the farm, and not of the counting room. "If in the top soil of your field there is phosphorus to the weight of 2,100 pounds, and a crop of corn takes off ten pounds, how many crops of corn can be grown before the soil becomes exhausted?" "How much is this phosphorus worth at the present market price of phosphates?" "What would it cost you per acre to keep the phosphorus content of the land up to its present rich-

ness, at the present price of phosphates?"

"If a crop of clover, thru the bacteria in its roots, adds nitrates to the soil to the value of \$20 per acre, what is the real value of a clover crop, if fed to cows, and x percent of fertility returned in manure, assuming that the cow will produce y butter, and it sells for z a pound?" "If a hen of a good laying breed will lay 200 eggs a year, and a scrub hen will lay 100, and it takes the market price of 7 dozen eggs to pay the hen's keep, how many hens of the pure laying strain will it take to be worth a flock of 100 scrubs?" "Make an inventory of your farm property."

Now when the pupils of the Page County schools began bringing "sums" of this sort home to work, Page County farmers began to prick up their ears. There was some sense in this. This wasn't any new-fangled useless folderol. This made the boys and girls worth more on the farm. And it made'em more contented, too, by gum!

Gradually the good work took hold of the people—who after all, are wiser than all the specialists in the world. Bad boys became good boys. A great moral and spiritual enrichment came and is coming to Page County. The problem of moral education in the schools seems to be solved when the schools are merged with the life.

They call it "correlation," in the Page County schools—the correlation of the school with life. And that is just what it is. There is no great gulf fixed between the school hours and those of out-of-school. Education dominates all. A nice girl armed with a teacher's certificate makes a whole Domestic Economy course with an oil stove costing three dollars, and a few pots and pans. It is the case of Mark Hopkins on one end of a log, and a student on the other end: Mark=student=university. School goes home with the Page County children, and the home kitchen becomes a branch of the domestic economy course, aided by the home sewing machine. School goes into the field with the boy, and the plowing becomes a lesson on soils, the husking a lecture in plant breeding, the butchering a period in stock-judging. And this drags the parent to school, too; so that Page County has become school crazy. If every county in America could become similarly insane, the railways would break down in three years under the loads of produce. For such insanity will make it possible for two boys to make homes for their two girls on the land that formerly was adequate for only one couple; and happy, well-educated pairs, too, they will be, where formerly they were sure that farming was only for those who couldn't "do better."

A correspondent-representative wanted in every county. Write for terms.

Home Department

NORTH DAKOTA STATE FAIR

Grand Forks, N. D., July 25-27, 1911

Educational Division

Rules Governing Exhibits

1. Schools and school pupils, only up to and including high school grades or equivalent, may compete in this division.

2. Articles of an exhibit in any class or lot of this division cannot compete in any other class or lot.

3. Articles exhibited in this division must be the handiwork of a school or school pupil in the State of North Dakota, or of Polk County, Minnesota.

7. In filling blanks the pupil's name should be given as exhibitor for class A. For classes B, C, and D the name of the school should be used. All entries must be made in duplicate, one sent to the Secretary of the Association and one fastened to each exhibit. No class or school or pupil can make more than one entry for the same prize.

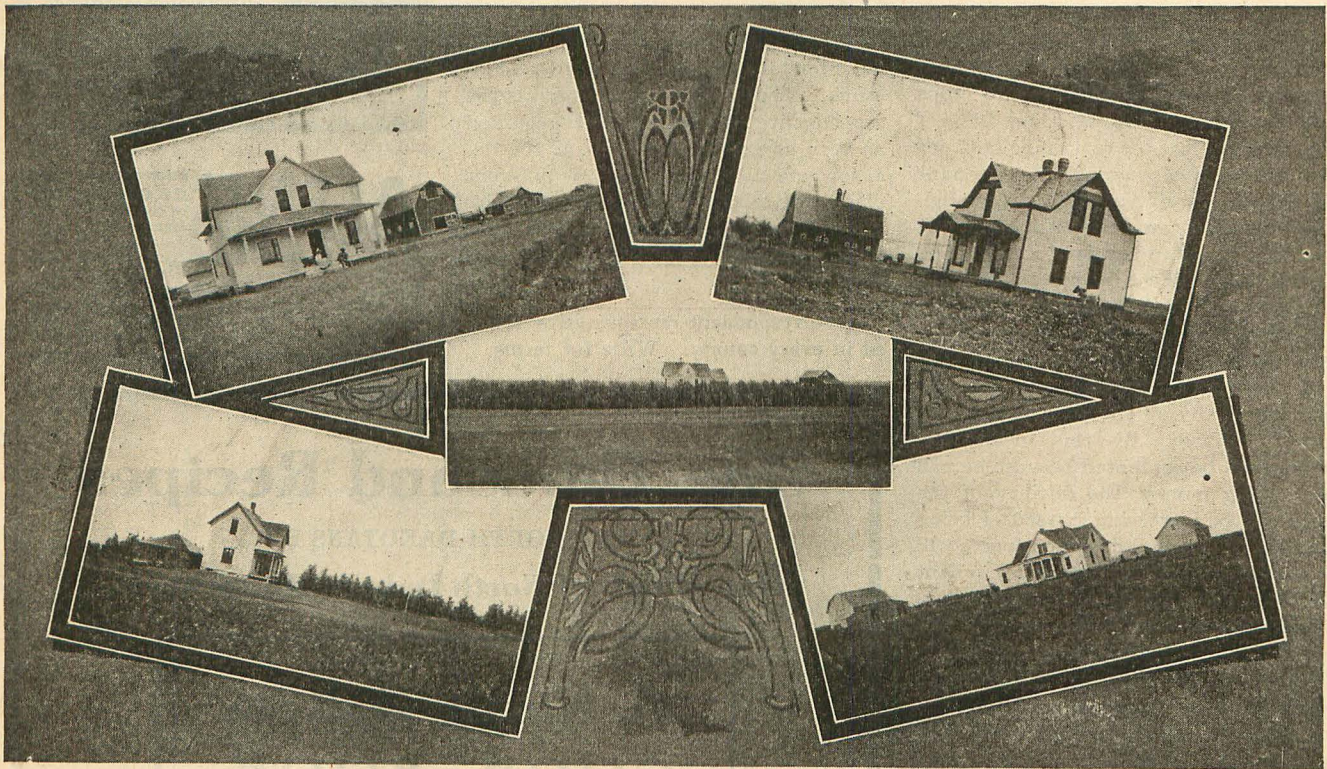
8. No charge will be made for entries in this division.

9. The collection of exhibits with each article properly labeled should be sent by express prepaid not later than Saturday, July 22 to Superintendent of Educational Division, North Dakota State Fair, Grand Forks, North Dakota.

THE PROBLEM OF THE LANDLORD AND THE TENANT

W. R. Porter, N. D. A. C.

Probably nothing has been more fruitful in producing wornout and weedy farms than the tenant system of farming. In the past the landlord generally wanted as large a net income as when he farmed the land himself. If the tenant was to produce such results he either must materially lower the cost of production, or rapidly use up the available fertility, or operate the farm at no profit or at an actual loss to himself. In nearly all cases the tenant suffers from a lack of capital, he does not have the livestock and up-to-date machinery necessary to lower the cost of production, consequently he is either forced to operate at a loss or else crop the land in such a manner as to remove the largest possible crops at the expense of the fertility in the soil. He is, also, forced to curtail any labor expenses that might be devoted to cleaning seed,



Farm Scenes in Renville County.

4. Schools may enter only one exhibit under each entry number. Entries to be made in the name of the school making the exhibit.

5. Any pupil may enter one exhibit under each entry number in class A. Entry to be made in the name of the pupil with school attending designated.

6. Entries must be made upon blanks furnished by Secretary of the Fair Association, M. C. Bacheller, Grand Forks.

10. The name of the pupil or school must not appear on the front of the exhibit or article. If exhibits are to be returned, each exhibit should be carefully labeled on the back with full address of school or pupil. Do not send any exhibit without label on the back and application for entry attached.

A correspondent-representative wanted in every county. Write for terms.

grain, to pulling noxious weeds, when they first appear, to hauling out manure or to the repair of fences or buildings. The inevitable results of such a system are worn-out, run-down farms that will give no adequate return to either the landlord or the tenant.

The cause of farms' deteriorating in the hands of the average tenant is an economic one, largely traceable to the greed of the landlord tho to some ex-

tent due to the unnecessary shiftlessness of the tenants themselves.

The remedy for these conditions is largely in the landlord's hands. He must plan a rotation so that he and his tenant will not be entirely dependent on the grain crops for an income. In other words, he must encourage the keeping of livestock on the farm. He must provide the necessary fences, buildings and land for pasture, etc. The tenant with his lack of capital certainly cannot and should not make these permanent improvements. They should be part of the invested capital of the farm and in many cases livestock such as dairy cattle, sheep and swine should also be provided by the landlord as part of his working capital. A farm without suitable buildings, fences and pastures is like a railroad without rolling stock or suitable terminals. A large amount of capital is invested in it but it lacks the essentials for earning dividends.

If the landlord provides these necessities, he will be able to get the very best class of tenants. He should have the land divided off into several equal fields so he can have the tenant practice a suitable rotation. This rotation should contain hay, forage and pasture crops enough to cover not less than 40% of the farm, leaving the remaining 60% for marketable grain crops. The tenant should be encouraged to keep enough livestock to eat up all the hay, straw, fodder and pasture so produced and he should return all the manure to the land. In this way, the tenant will be able to keep a good sized herd of dairy cows, a large flock of chickens, a bunch of hogs and sheep so that his livestock would pay practically all the expenses of running the farm. By this means the tenant will be contented because he will be making money, the fertility of the farm will be increasing instead of being depleted. The buildings and fences will be kept in good repair because the tenant will be the first to suffer if they are not. Weeds will be kept down, as they will not thrive any better on a rented farm than on one worked by the landlord when a proper rotation is used and livestock is kept. The sixty per cent of the land in grain on such a farm will likely yield larger money returns than the one hundred per cent would do if a single grain crop was used as is generally the case on rented land. The landlord that encourages the tenant to rotate crops and keep livestock makes the tenant prosperous and in that way prospers himself because the tenant has first to produce the wealth and if he cannot make anything the landlord will also

make nothing. He not only fails to get dividends but his capital itself will depreciate more or less rapidly. On the other hand, if the land is properly handled, if the buildings and fences are properly kept up and if noxious weeds are kept out of the land, if stock are kept and if clovers, alfalfa and grasses are grown the land or capital stock will rapidly increase in value. The landlord must give the tenant every inducement to keep livestock and rotate the crops in a systematic manner, if he wishes the largest returns from his land thru the years that will quickly come and pass away.

SACCHARIN MUST GO

The Secretary of Agriculture has just issued a decision, based upon a finding of the Referee Board of Consulting Scientific Experts, which forbids the use of saccharin in food on and after July 1st, next. The decision is under the Food and Drugs Act and will prohibit the manufacture or sale in the District of Columbia or the Territories of foodstuffs containing saccharin, as well as interstate commerce in such foodstuffs. The finding of the Board is the second since its creation and is regarded as very sweeping, inasmuch as the decision affects more than 30 different classes of foods. Some of the articles affected are soft drinks, sweet pickles, jellies and jams, and in some instances beer.

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One Hundred North Dakota Housewives

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The decision as promulgated is signed by the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor, in order that the regulations embodied in the decision may be put into effect. The decision follows:

"At the request of the Secretary of Agriculture, the Referee Board of Consulting Scientific Experts has conducted an investigation as to the effect on health of the use of saccharin. The investigation has been concluded, and the Referee Board reports that the continued use of saccharin for a long time in quantities over three-tenths of a gram per day is liable to impair digestion; and that the addition of saccharin as a substitute for cane sugar or other forms of sugar reduces the food value of the sweetened product and hence lowers its quality.

"Saccharin has been used as a substitute for sugar in over thirty classes of foods in which sugar is commonly recognized as a normal and valuable ingredient. If the use of saccharin be continued it is evident that amounts of saccharin may readily be consumed which will, thru continual use, produce digestive disturbances. In every food in which saccharin is used, some other sweetening agent known to be harmless to health can be substituted, and there is not even a pretense that saccharin is a necessity in the manufacture of food products. Under the Food and Drugs Act articles of food are adulterated if they contain added poisonous or other added deleterious ingredients which may render them injurious to health. Articles of food are also adulterated within the meaning of the Act, if substances have been mixed and packed with the foods so as to reduce or lower or injuriously affect their quality or strength. The findings of the Referee Board show that saccharin in food is such an added poisonous or other added deleterious ingredient as is contemplated by the Act, and also that the substitution of saccharin for sugar in foods reduces and lowers their quality.

"The Secretary of Agriculture, therefore, will regard as adulterated under the Food and Drugs Act foods containing saccharin which, on and after July 1, 1911, are manufactured or offered for sale in the District of Columbia or the Territories, or shipped in interstate or foreign commerce, or offered for importation into the United States."

LIGHTNING PROTECTION

E. S. Keene, Prof. of Physics and Mechanical Engineering, N. D. A. C.

Protection from lightning is a subject that recurs with the coming of each

springtime. In the violence of an atmospheric electric disturbance, accompanied by the awe-inspiring flashes of lightning so common with the thunderstorms of the northwest, there are few who have not desired the protection of a lightning-proof shelter.

The probability of an individual building being struck by lightning is really very slight, but there is always a possibility of such an occurrence and also that the stroke might be attended with considerable violence; more than that the building might take fire.

That lightning rods are a real protection to buildings from lightning has been proven so many times that their value is no longer questioned, but the possibility of obtaining experimental data is so limited that definite rules for the establishment of the rods and conductors have never been formulated. For many years, lightning rods were looked upon with suspicion in this country, because their sale for a considerable period was used as a means to defraud the unwary.

The formation of lightning is very imperfectly understood but experience with its vagaries and a knowledge of the laws of high-tension electric currents has established a fairly good understanding of the methods of constructing lightning conductors for all ordinary discharges. It is very well known that lightning is the discharge of a large amount of electricity in a very short space of time and that whatever affords it a passage to the earth is apt to be badly damaged, unless the vehicle happens to be a good conductor of electricity and of sufficient size to transmit the amount of electric energy the flash contains; in which case it passes away doing no damage at all.

As a storm develops the electrically charged clouds pass over the earth and when the electrical intensity becomes great enough to break down the resistance of the intervening air, the resulting discharge will pass into the earth by the most convenient path. This is commonly some high object of the landscape, a building, a pole, a tree or any other object that extends up from the earth. If the object is a conductor of electricity and connected with the earth, the lightning will pass into the ground without the least damage being done but if it is not a good conductor, the havoc that is wrought in an instant is sometimes appalling.

Buildings with metallic roofs that are properly connected with the earth are far better protectors from lightning than could be given by rods. Buildings that are completely covered with sheet metal and well connected with the earth are

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practically lightning proof. Covered in this manner, buildings have been known to be repeatedly struck by lightning without the least damage. The sheet-iron grainery, so common in the west, when well-connected with the earth may be considered lightning proof. The ground connections mentioned above may be made of metallic rods that extend well into the earth and securely fastened to the metallic covering of the buildings.

In considering the form of lightning conductors it is well to keep in mind the fact that a metal covered building well-connected with the earth is practically proof and that one with a metallic roof,

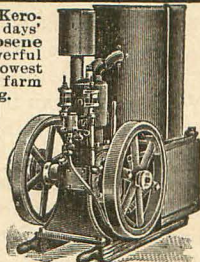
N. D. Institutes Must Not Stop

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PRINTING PRESS **CAMERA AND OUTFIT** **FOUNTAIN PEN**

well grounded is excellently well-protected if not perfectly safe. If then, the roof of a building possesses a metallic ridge, eve-troughs and down-spouts, these will afford very good protection if they are all connected and well-grounded. A roof covered with a metallic screen, as a chicken screen, makes an excellent protector when properly grounded.

It must be remembered that the ground connection is a positive necessity and too much care cannot be exercised in its construction. The earth is the great reservoir of electrical energy and it is always at zero potential. If a discharge of lightning can be directed into the moist earth by a conductor, its energy is soon dissipated but the ground connection must be of considerable area and extend well into the moist earth. A piece of galvanized iron pipe driven into the ground seven or eight feet makes a good "ground." Large buildings must have two or more such "grounds." The connecting wires must be securely fastened to the ground connections.

In the matter of conducting wires, the Weather Bureau in a bulletin on Lightning and Lightning Protection recommends a number three, galvanized iron wire (Brown & Sharp gauge) as amply sufficient in size for ordinary lightning protection. If metallic downspouts are used as conductors the connections should be made, with the "grounds," with riveted joints. Copper conductors give no better protection than iron if the iron is kept covered to prevent it from rusting.

Wire fences are often the cause of damage by lightning because of the method of construction. If the fence wires are grounded the danger from this cause will disappear. Ground wires may be made of ordinary fence wire and should be connected with each of the wires of the fence and extend into the ground three feet. Such "grounds" should be made for each 100 feet of fence.

PRODUCING MARKET MILK

G. L. Martin

The quality and flavor in manufactured dairy products has a close relation to the methods of producing and handling the raw product. Unless the milk is produced from healthy cows, in clean surroundings and handled in a sanitary manner, a first class manufactured product cannot be made.

At the last Tri-State Grain and Stock Growers' Convention held at Fargo, N. D., exhibits were made of but-

ter and market milk. The results, of the scores on these products showed very forcibly the relation in quality between milk and the butter made from the same milk. The milk exhibit was scored according to the regular standard score card used by the Bureau of Animal Industry, Washington, D. C. and the average findings from the total scores are as follows:

Perfect Score				
Bacteria		Flavor and odor		Visible dirt
35		25		10
Fat	Solids not fat	Acidity	Bottle and cap	
10	10	5	5	
Judges Score				
Bacteria		Flavor and Odor		Visible dirt
20		23.9		9.6
Fat	Solids not fat	Acidity	Bottle and cap	
8.8	5.5	0	5	

It was quite noticeable that in practically every sample of milk where the flavor and odor scored low more or less of visible dirt was likewise present. The most prominent flavor and likewise most commonly found was designated by the judge as "unclean." This no doubt was the result of allowing dirt from unclean stables, cows or utensils to enter and contaminate the milk. When dirt once gets into the milk nearly all of it goes into solution, consequently cannot be strained out. In examining the milk for dirt, the samples were allowed to stand for some time undisturbed, then the bottle raised carefully in its natural upright position without tipping until higher than the head. The dirt was observed then with the naked eye and scored according to the amount found. A better way might be to examine with a reading glass, instead of the naked eye, for then quite often the exact nature of the dirt may be detected and the cause for its presence determined.

Several striking examples were brought out in this contest which emphasized very forcibly the relation of cleanliness to quality. From the same farm with a sample of milk that scored nearly perfect in respect to visible dirt was exhibited a sample of butter, doubtless made from the same milk, which received the highest score on flavor. Again from the same farm with a sample of milk showing much visible dirt was exhibited a sample of butter that scored lowest on flavor.

Many of the samples on exhibition were designated by the judge as "stale flavor" which is a result of not properly

cooling the milk before bottling. The animal heat was not all removed, consequently produced sickening flavors. Besides this it caused the milk to sour prematurely, which made several of the samples show to a decided disadvantage. For example, two bottles of milk from the same farm and doubtless from the same animals ranked first and fourth in the final scoring.

Insufficient cooling is one of the common difficulties met in market milk that has to be more or less exposed in distribution and is often the cause for the poor keeping qualities.

In several of the samples on exhibition "kitchen" flavors were found. These were often smothered flavors and quite difficult to trace the exact source but no doubt were due to keeping the milk in the kitchen, pantry or cellar where vegetables are cooked or kept. Milk very readily absorbs all odors floating in the air, so if kept in such places as is common where only a few cows are milked objectionable odors and flavors are sure to result. The butter fat is the portion of the milk which absorbs and retains odors most readily, consequently if the milk becomes contaminated these flavors are retained by the fat and injure the quality of the butter.

Some of the samples presented a salty flavor. This was due probably to some physiological derangement of the animal. In the first place, every cow producing milk for human consumption should be in a perfect state of health all the time. Plenty of fresh air in the stable, proper food and sufficient exercise will insure health in the average animal. Often flavors imparted to the milk by the animal are due to the feeding of roots or silage. If fed just before milking so they will be in the process of digestion during the milking period bad flavors often result. The safest way is to feed just after milking so the food will be completely digested before the next milking time, then no bad flavors will be imparted to the milk.

The source of most of the flavors found in scoring this exhibit could be traced to unclean stables which accounted for the presence of visible dirt. This sort of contamination is the most filthy and perhaps the most common in the present day milk supply. There is no reason for such contamination if the stables are sufficiently lighted and kept clean and well ventilated.

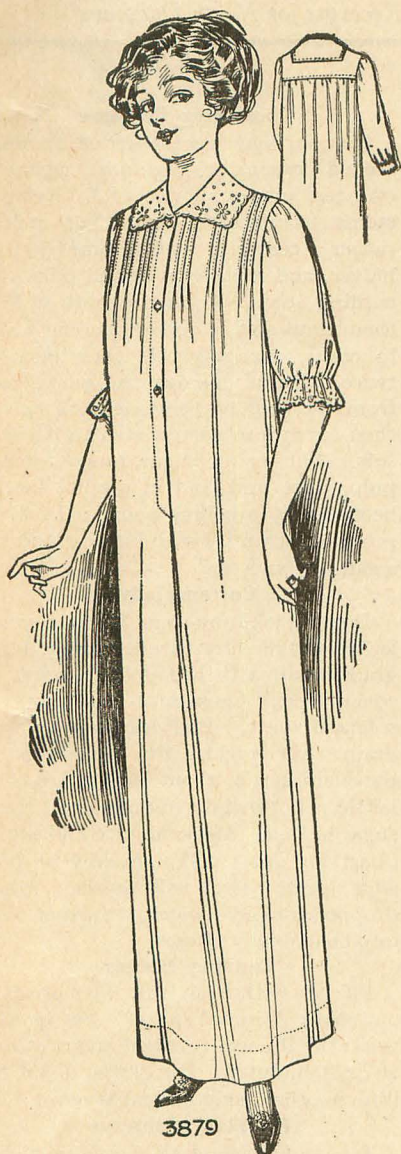
However, if the milk is immediately cooled, then put into clean utensils and kept where no odors are present to be absorbed, the raw product and likewise the manufactured products may be greatly improved in quality.

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HOME DRESSMAKING



3879



3997



3882

No. 3879.—Fine tucks afford an effective finish for lingerie. In the nightgown shown above, hand-run tucks were arranged in groups. French batiste was the material used, and the flat collar and sleeve frills were hand embroidered. The gown closes in front and has a shallow square yoke to which the back is gathered. Elbow length is usually preferred for the one-piece sleeves, tho the pattern provides for full length. Cross-barred dimity, nainsook, lawn and china silk are favorite materials for night-gowns. Brier stitching or tiny hand-embroidered vines may trim the gown between the tucks. Pattern sizes are 32, 36, 40 and 44 inches bust measure. Size 36 requires 5½ yards of 36-inch material.

No. 3882.—This combination under garment design unites a well-fitting



3977

corset-cover and a short petticoat. It was made of fine nainsook with hand embroidery, lace, beading and ribbon on the corset-cover and a lace ruffle on the five-gored skirt. The corset-cover has the attractive surplice neck and laps to the left side where the garment closes. For a plainer garment, the corset-cover might be buttonhole scalloped and a scalloped ruffle be used on the skirt.

Patterns for the combination garment are in 32, 34, 36, 38, 40, 42 and 44 inches bust measure. Size 36 requires three and three-quarters yards of 27-inch material, with 3 yards of lace 4½ inches wide, 4 yards of insertion, 4½ yards of edging and one and one-eighth yard of beading. The Embroidery de-



sign on the corset-cover is No. 11551, price 30 cents.

No. 3997.—Bordered silk mousseline is a good selection for this design which shows another form of over-skirt. This one is pointed at the front and back and is also in four pieces falling over the top of the plaited flounce. There are seven gores in the foundation. The dress closes at the back. Costume 3997 is for 14, 16 and 18 years, the 16-year size requiring nine and three-quarters yards of bordered material 27 inches deep with 1 yard of tucked net 18 inches wide and one and three-quarters yards of 36-inch lining for foundation gores.

No. 3977.—Embroidered flouncing was used in the make-up of this Misses' waist. It is cut in sizes 14, 16 and 18 years. Size 14 requires 2½ yards flouncing 18 inches deep and 1 yard 18 inches deep and 1 yard, 18 inches all over lace. Price 15 cents.

No. 3975.—Embroidered flouncing and bordered fabrics are both potent in producing effective results from simple designs. This waist is cut in sizes 32, 34, 36, 38 and 40 inches bust measure, and the medium size requires 1¼ yards of 36 inch material. Price 15 cents.

THE NORTH DAKOTA FARMER will supply its readers with perfect fitting seam allowing patterns from exclusive Paris designs—at the given price for each pattern. For ladies upper garments give bust measure, for skirt and under garments waist measure. For misses and children give age and size. All patterns are guaranteed a perfect figure.

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Seasonable Receipts

Selected from "One Thousand Receipts for North Dakotans"

POETRY AND PRESVERING

You may have traveled far and wide,
And faced all sorts of weather,
But, if you'd row against the tide,
Just try these two together!

I've done it, so I ought to know.
Ah! such a heat and glowing!
Song struggling with its undertow,
And syrup overflowing!

The moral? Lo, it hideth not!
And all wise people know it.
'Tis, if you're born to watch a pot,
Don't try to be a poet!

—Good Housekeeping.

Beets for Dinner

A pretty vegetable dish may be made as follows: Boil medium-sized beets, remove skin and cut off the stem end so that they will stand evenly. Scoop out the center of the beet and fill with fresh peas nicely seasoned with salt, pepper and a little butter. Serve very hot.

To Can Rhubarb

Peel and cut the rhubarb and pack into glass cans—Fill the cans with clean cold water, being careful to get out all air bubbles. Set the can in a pail of water deep enough to cover the can, then screw on the cover under the water. When wanted, drain off the water and stew as if it were freshly cut.

If you wish to cook the rhubarb before canning, just fill a large jar or porcelain kettle and set it in the oven when you are using the top of the stove for something else. You may then add sugar or can it without as preferred. Cooking without peeling makes the rhubarb a pretty pink and saves much time.

Strawberry Jam

Select large berries and boil in their own juice only 1 hour. Add for every pound of berries ¾ pound sugar and boil slowly 20 minutes longer. This will keep in jelly jars any length of time.

Raspberry Jam

Use 1 pound sugar to each pound berries. Place both in kettle and crush berries with potato masher. Boil slowly for ½ hour, then seal while hot, or place in open jars and cover with paper. A little currant or lemon juice added about 5 minutes before removing from fire will greatly improve the flavor.

Gooseberry Conserve

Six quarts green gooseberries, 2 pounds seeded raisins, 5 pounds sugar, 5 oranges, juice of all; peel of 3. Remove stems from berries and chop raisins rather coarsely. Cut oranges into halves, and remove juice and pulp, discarding seeds. Cook the peel of 3 of them until soft in enough boiling water to cover, changing the water once or twice. Drain, remove the white part from the peel by scraping with spoon, then cut it into narrow strips with scissors. Put berries, sugar, raisins, orange pulp, juice and rind in granite kettle; heat slowly to boiling point and boil 20 minutes, or until syrup is thick. Put in small jars and seal.

Currant Jelly

Do not pick from stem, but remove all leaves and imperfect fruit. Put in large granite pan with just enough water to cover fruit. Cook until currants are soft and white. Pour into bags and let drain over night. Put juice on in porcelain kettle, about 3 quarts in each kettle. Let boil down one-third. Have sugar heated. Measure juice and sugar, quart for quart. Boil rapidly as possible until jelly will harden when dropped into cold water. Turn at once into heated jelly glasses.

Canning Berries

Fill jars with fresh fruit, with or without sugar (I prefer sugar). Set in cold water, let it come to a boil and continue 20 or 30 minutes. If it settles down, fill from another can, and seal at once.

Pie Plant Conserve

Ten cupfuls pie plant, 8 cupfuls sugar, 3 oranges, juice and rind, 1 lemon, pulp and juice only, ¼ pound almonds blanched and chopped fine, a little salt. Boil the orange rind in 3 different waters; chop fine and add to the above. Boil the whole 25 minutes.

Spiced Currants

Six pounds currants, stemmed and washed; 6 pounds sugar, 1 pint vinegar, 5 cents worth whole cinnamon, 2 cents worth whole cloves. Put spices in very loose bag, and boil with vinegar and sugar until it is like syrup, then add currants and cook until thick like jelly.

To prevent the cracking of glass fruit jars or jelly glasses when pouring boiling fruit or jelly in them, place a silver spoon in each before pouring. No previous heating is necessary.

North Dakota Farmer: Fifty Cents a year; 3 yrs., \$1.00. Agents wanted.

While the baby should be out of doors as much as possible he will tire of sitting in his carriage. To give him a change, spread a square of oil cloth on the ground and over this a comforter. There is then no danger of dampness and baby may roll and kick to his heart's content.

We have all been annoyed by that one buzzing, humming mosquito on summer nights. Keep on hand a long stick with small tin pail cover tacked on to the end. Put in a layer of cotton batting sprinkled with a few drops of kerosene. Hold this just below where the mosquito is resting and he will disappear.

COOK PORK WELL

Cases of illness sometimes occur from eating uncooked or insufficiently cooked pork which is infested with a microscopic parasite commonly known as trichina or flesh-worm, the scientific name being *Trichinella spiralis*. An average of 1 or 2 per cent of the hogs slaughtered in the United States are infested with this parasite. When transmitted to human beings, trichinae may cause serious illness, sometimes resulting in death. Out of about 15,000 cases of trichinosis recorded in medical literature, most of which occurred in Europe, 830 resulted fatally.

No method of inspection has yet been devised by which the presence or absence of trichinae in pork can be determined with certainty, and the government meat inspection does not include inspection for this parasite. All persons are accordingly warned by the United States Department of Agriculture not to eat pork, or sausage containing pork, whether or not it has been inspected by federal, state, or municipal authorities, until after it has been properly cooked.

A temperature of about 160 degrees Fahrenheit kills the parasite, therefore pork when properly cooked may be eaten without any danger of infection. Fresh pork should be cooked until it becomes white and is no longer red in color in all portions of the piece, at the center as well as near the surface. Dry-salt pork, pickled pork, and smoked pork previously salted or pickled, providing the curing is thoro, are practically safe so far as trichinosis is concerned, but as the thoroughness of the curing is not always certain, such meat should also be cooked before it is eaten.

A pamphlet giving information on the subject may be obtained on application to the Secretary of Agriculture, Washington, D. C.

A correspondent-representative wanted in every county. Write for terms.

To kill Canadian thistles take it at its weakest point. This is when it is in blossom. At this time it has drawn heavily on the food stored up in its roots. Mow it and plow at once; then plow often enough so that no thistle is allowed to get up. Keep at this until fall and the thistle will be dead. If this treatment is begun before they are in blossom it will be harder to kill them as they will in that case have more food in the roots to help bridge them over.

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Seeds, Trees and Gardens

C. B. Waldron, N. D. A. C., Editor.

BLACK POTATO BEETLE

We have had two species of this beetle sent in to us, one being the black blister beetle and the other the gray blister beetle. These names are descriptive of the color of the two species. Both of these species are native thruout the larger part of the United States.

In the wild state they feed chiefly on the legumes like the vetches which are known under the generally common name of wild pea. As their numbers increase their list of food plants seems to become more varied and when unusually abundant the potato is one of the first plants that suffers from their attacks.

They are a slender active beetle from one-half to three-fourths of an inch in length. They vary in size much more than individuals of most other species of insects. Their danger comes from the fact that they light upon the potato in such large numbers and work destruction almost before their presence is noted.

Even if they succumbed readily to Paris green, which they do not, they would on account of their numbers do a great amount of damage before they had eaten enough to obtain a fatal amount of the poison.

Added to this fact is the equal important one that they come and go so rapidly that new ones are ready to take the places of the others on very short notice. Because of these peculiarities the insect is one of the most difficult ones of all our pests to contend with. Sometimes they seem to be frightened out of the fields by the very act of spreading on the poison tho the poison of itself will not do very much good.

It has long been the custom in the older states to drive these from the potato fields with brush or by going over the fields sowing ashes or some similar substances that will make a cloud of dust.

It might be noted in passing that this pest is not wholly an unmeaning evil. In its earliest form as a grub it feeds upon the eggs of grasshoppers. These beetles which you see now in our potato fields will soon be laying their eggs in the nests of the eggs of the grasshoppers and for each black beetle that we see we have somewhere in our region a shortage of 30 or 40 grasshoppers. The fact that grasshoppers have been very numerous for the last one or two years accounts for the over abundance of the

beetles this season. While we appreciate the good work that the beetles are doing for us, still it is rather an expensive way to get rid of the grasshoppers and if all the land upon which grasshoppers are found can be plowed this fall we will have but very few of either the grasshoppers or the blister beetles next season.

EXTERMINATING GRASSHOPPERS

By C. B. Waldron, A. C. N. D.

Those who failed last fall or early this spring to destroy the grasshopper eggs deposited during the summer are confronted with the more difficult problem of destroying the young grasshoppers at this time. Reports of damage are beginning to come in chiefly so far of injury to gardens. The hatching commenced early in May and the insects are as yet too small to attract much attention. The fields sure to suffer considerable injury are those lying along side of unplowed stubble fields or old worn out pastures. As the insects hatch out from those places they will naturally move on to the adjoining grain fields and meadows.

It may not be too late to plow a strip of the stubble nearest to the grain gradually widening this as rapidly as possible till the field is plowed. We have succeeded in saving many grain fields in this manner even tho the plowing was not begun till the hatching process was over.

Great numbers of the young insects are turned under by the plow, particularly if the central strip of each land is left to be finished up late in the evening when the insects are not active. The catching of the young insects as they are passing from their hatching grounds is a means of last resort and should not be necessary when other and surer methods for grasshopper destruction have been applied.

The large pans or "hopper-dozers" that have ordinarily been used for this purpose can readily be made at the local blacksmith shops at a total cost of about \$8. The "hopper-dozer" consists of a galvanized iron pan usually made twelve feet long and about two and one-half feet wide with a depth of three inches. It should be divided by cross partitions into about five compartments.

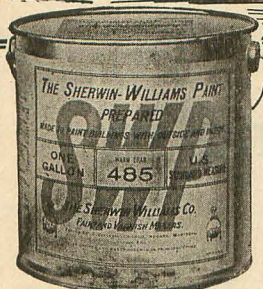
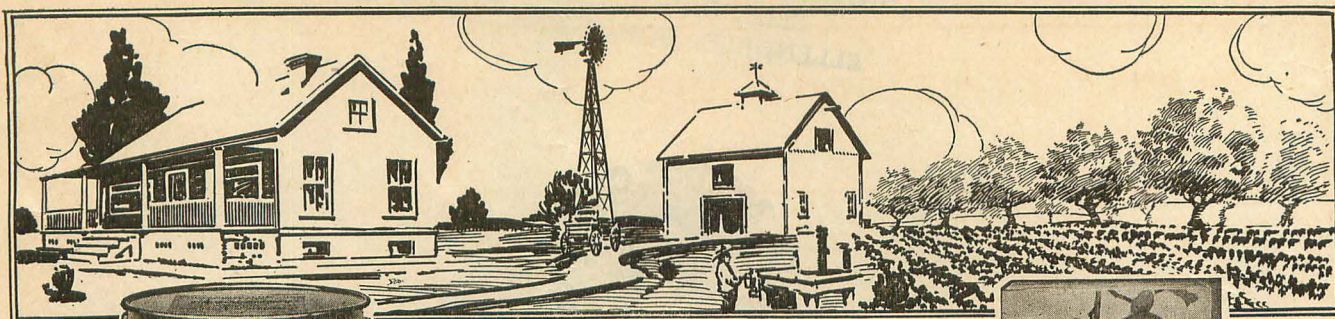
This pan should be mounted on two flat runners about five feet long placed under either end and joined by two pieces of two by four placed along the front and back edges of the pan. To the two by four on the back of the pan upright pieces two feet high are firmly nailed to which a strip of canvas is fastened. This keeps the grasshoppers from jumping over the pan as it is drawn forward. When in use the pan contains an inch or so of water with a film of kerosene or petroleum on top about a quarter of an inch thick.

The canvas at the back ends should also be kept saturated with kerosene.

It is drawn by a horse hitched to either end. A light pole suspended across from the draw ropes serves to make the hoppers jump and when they come down the pan is under them. Those that succeed in escaping from the pan will die after a short time as the smallest amount of the oil is fatal. On one occasion with this method we succeeded in catching over 100 bushels of half grown hoppers along side of one field. Last season we poisoned immense numbers in the gardens with poisoned bran.

This is made by adding one-fourth of a pound of Paris green to a bushel of dry bran mixing thoroly, to this is added one gallon of molasses and enough water to moisten well. This is scattered along the rows in the garden where it seems to be eaten in preference to anything else. It is a mistake to assume that heavy spring rains or even snows are likely to seriously affect the grasshoppers or their eggs. Unless some natural enemy appears in large numbers such as the gull or some of its insect foes they are bound to increase unless the proper means are employed for their destruction. The simpler and most effective method is to plow under the eggs.

L. R. Waldron in Third Annual Report Dickinson Sub-Station: In planting the trees we take ground at least two years old. Deep furrows are plowed every 8 feet. The trees that are used are generally seedlings from 18 to 24 inches high. A pail of very thin mud is prepared and a bunch of each kind of trees is kept in it. Trees are planted by one man, using a spade. The spade is inserted at the bottom of the furrow and worked back and forth to form a wedge-shaped opening. The root of the tree is inserted as the spade is withdrawn. After the removal of the spade dirt is pressed firmly around the roots of the tree. The furrow is partly filled in by a corn cultivator straddling each row of trees. It is better to leave the furrow only partly filled in, for by so doing the water from the rains will run into the furrow keeping the trees moist.



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